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OTA SPECIAL REPORT

Continuing the Commitment: Agricultural Development in the Sahel

CONGRESS OF THE UNITED STATES
Office of Technology Assessment
Washington, D. C. 20510

J 952-85

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Foreword

In 1985, rain came to the Sahel and provided partial relief from its latest drought. For the moment, hunger in West Africa is largely forgotten. However, many questions remain unanswered regarding why this area remains so poor and so vulnerable after nearly a decade of development assistance.

In June 1985, the Technology Assessment Board approved the requests of three congressional committees and five Board members that OTA address some of these questions as part of our study of low-resource agriculture in Africa. Although OTA's full study will not be completed until late 1987, we agreed to provide an earlier report focused on development in the Sahel. This special report examines the record of assistance to nine nations of the Sahel in West Africa, explores the lessons learned in a decade of efforts, and suggests policy implications for more effective U.S. assistance there and elsewhere in Africa. The report emphasizes the technical and institutional factors that constrain development in one of the poorest regions in the world. The committees that requested the study are: the House Select Committee on Hunger, the House Science and Technology Committee (the Subcommittee on Natural Resources, Agriculture Research, and Environment), and the House Agriculture Committee. Of OTA's Technology Assessment Board, Senators Hatch, Kennedy, and Pell and Representatives Evans and Udall requested this study. Also, the House Foreign Affairs Committee supported this work.

This report draws on the expertise of a large number of people. In particular, we appreciate the assistance provided by approximately 100 Sahelian scientists, decisionmakers, and farmers and herders with whom we spoke. Also, we are grateful to workshop participants, the advisory panel, and additional reviewers who helped us determine the scope of the work and reviewed it to ensure its accuracy. Of course, OTA remains responsible for the analysis and the report does not necessarily represent the views of individual members of the advisory panel.

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Contents

Chapter *Page*

1. Summary and Options 3
   Summary 3
      The Sahel Development Program and the Club du Sahel/CILSS Framework 3
      Poverty and Increasing Vulnerability 6
      Decade of Lessons 6
      Applying the Lessons: The Agency for International Development 8
      Sahelian and Donor Institutions 10
      Other U.S. Actors in the Sahel 11
   Findings and Options 12
      Is Further Support for the Sahel Development Program Justified? 12
      Can a More Effective Partnership Be Created? 13
      Is the Strategy Commensurate With the Commitment? 15
      Is AID Working Against Itself? 16
      Can Diverse Actors With Diverse Strengths Work Together? 17

2. AID's Sahel Development Program and the Club/CILSS Framework 21
   The U.S. Commitment to Club/CILSS: The Sahel Development Program 22
   The Club/CILSS Framework 23
   Evolution and Constraints 25

3. The Sahel: Diversity and Transformation 31
   The Sahel Yesterday 32
   Societies in Transition in the Sahel 34
      Migration 34
      Pastoral Systems in Transition 35
      Changing Social Systems 35
   Social and Economic Development of Sahelian Nations 36
      Profile of Poverty 36
      The Sahel in the World Economy 38
   The Growing Gap Between Food Production and Food Requirements 41
   A Diverse and Changing Environment 46
      A Harsh Environment: Climate, Rainfall, and Soils 47
      Impact of Human Activity on the Environment 49

4. A Decade of Lessons: Technologies Past and Future 55
   Disappointments and Accomplishments 55
   Why Technology Failed To Solve the Problems and More Promising Approaches 58
      An Inadequately Understood Environment 58
      Poorly Appreciated Socioeconomic Systems 61
      Guidelines for Sahelian Agricultural Technologies 64
      The Integration of Traditional Technologies 66

5. A Decade of Lessons: Policies and Choices 71
   Modes of Development and Development Assistance 72
      Participation: Leaving Out the Ones That Count 72
      Short-Term, Product-Oriented Project Approaches 73
      Complexity of Project Design 75
      Making Research More Appropriate 76

Contents—continued

Chapter *Page*

Policy Disincentives and the Potential for Reform 79
  Agriculture's Low Priority 79
  Cereals Policies 80
  Food Aid and Export Subsidies 81
  Encouraging Effective Marketing and Removing Constraints on Private Initiative 81
  Land Tenure and Regulation of Access to Natural Resources 82
  Fiscal and Institutional Reform and Recurrent Costs 82
  Limitations of Policy Reform 83
Beyond the Lessons: Critical Issues To Be Addressed 83
  The Balance Between Irrigation and Rainfed Agriculture 84
  Food Production and Export Crops 85
  Strategies for the Livestock Sector 87
  Population Programs: The 50 Million People Question 88
  Production and Equity 90
  Issues and Priorities 92

6. Applying the Lessons: The Agency for International Development 95
Incorporating the Lessons 96
  Evolving Strategies 96
  AID's Revised Sahel Strategy 97
Implementing the Strategy 100
  The Internal AID Context 100
  Constraints on the Congress-AID Relationship 104
  Development Assistance and Foreign Policy Objectives in the Sahel 107

7. A Catalog of Other Actors in the Sahel 111
African Institutions 112
  Sahelian Government Institutions 112
  Nongovernmental Sahelian Institutions 114
U.S. Organizations 117
  U.S. Private Voluntary Organizations 117
  The Peace Corps 121
  African Development Foundation 123
  American Private Investment 125
  Other U.S. Federal Agencies 127
Multilateral and Bilateral Donors 128
  Size of Programs and Trends 129
  Project Size and Scale 130
  Sectors Where Funders Operate 130
  Types of Assistance 131
  A Variety of Strengths 132
  A Diversity of Approaches 133

References 137

Appendix A: Appendix Tables 145
Appendix B: Other Contributors 151
Appendix C: Additional Reviewers 152
Appendix D: OTA Field Visits-November 1985 153

Contents—continued

Page
Appendix E: The Sahel Development Strategy Statement—Executive Summary . 158
Appendix F: Assessment of the Sahel Development Program—Executive Summary . . . 162

Tables

Table No *Page*
2-1. U.S. Bilateral Assistance to the Sahel, 1976-86 . . . 22
3-1. The Sahel: Social and Economic Indicators . . . 37
3-2. Agriculture-Related Social and Economic Indicators . . . 37
3-3. Major Exports and Share of Export Earnings, 1980-82 . . . 38
3-4. Debt of Sahelian Nations . . . 40
3-5. Land Distribution by Climatic Zone and Suitability of Soils . . . 49
3-6. Sustainable and Actual Numbers of People in the Sahel . . . 50
5-1. Agricultural Exports and Imports as a Percent of Total, 1983 . . . 86
7-1. U.S. Private Voluntary Organizations in the Sahel . . . 117
7-2. The Peace Corps in the Sahel . . . 122
7-3. Collaborative Research Support Programs Active in the Sahel . . . 128
7-4. Top 10 Donors to Sahelian Member Countries, 1975-83 . . . 129
A-1. General Commitments Trend by Different Donors From 1975 to 1983: DAC Countries . . . 145
A-2. General Commitments Trend by Different Donors From 1975 to 1983: Multilateral Institutions (Non-OPEC) . . . 145
A-3. General Commitments Trend by Different Donors From 1975 to 1983: OPEC Countries and Institutions . . . 146
A-4. Who Finances What in Certain Sectors . . . 146
A-5. Sectoral Breakdown and Trend of Commitments From 1975 to 1983 . . . 147
A-6. U.S. Aid to the Sahel, Fiscal Years 1975 to 1985 . . . 148
A-7. Amount Spent on Public Law 480 Commodities for the Sahel, 1977-86 . . . 149

Figures

Figure No. *Page*
1-1. CILSS Countries of West Africa . . . 5
3-1. Commodity Price Trends for Peanuts, Cotton, Rock Phosphate, and Iron Ore . . . 39
3-2. Growing Debt Burden of Sahelian Nations, 1974-83 . . . 40
3-3. Index of Total Food Production in the Sahel, 1960-85 . . . 41
3-4. Index of Per Capita Food Production in the Sahel, 1960-85 . . . 42
3-5. Sahel Grain Imports by Commodity, 1966-84 . . . 43
3-6. Sahel Grain Imports, 1967-85 . . . 44
3-7. Total Amount of Food Grains Available in the Sahel, 1967-84 . . . 45
3-8. Ratios of Food Aid, Grain Imports and Grain Availability in the Sahel, 1967-85 . . . 46
3-9. Climatic Zones in the CILSS Countries . . . 48
3-10. Percentage Share of Wood in the Sahel Countries' Supply of Energy, Mid-1970s . . . 51

Chapter 1

Summary and Options

In the Sahel, we walked on rock-hard soil that had grown crops when the current farmers were children. Now the land seemed so infertile, the work to reclaim it so laborious, and the odds against success so high, that we wondered at the farmers' perseverance. Why not go south, like so many had already done? One peanut farmer in Burkina Faso answered,

> We have a proverb. If a tree has strong, deep roots, it lives through the dry season, even when it loses all its leaves. I will stay and improve this land because my roots are in the soil. We dream that our children will return like the leaves when the land is better."

Chapter 1

Summary and Options

SUMMARY

Drought has long been a fact of life in the Sahel region of West Africa. When the rains fail, as they did for 5 years beginning in 1968 and again from 1980 to 1984, crops wither, livestock die, and people suffer. International relief efforts had funneled over $360 million of emergency aid to the Sahel by 1974, but dealing with that immediate crisis would not prevent future problems in the region (37). The real challenge for both Sahelians and the international assistance organizations was to avoid future crises.

One important question that arose was how best to coordinate the multitude of assistance efforts, donors, and recipients. And what balance should be struck between relief, recovery, and development? Thus was born the Club du Sahel/CILSS framework (see box A)—the Club du Sahel being a loosely structured association of donors and Sahelians, and CILSS being an intergovernmental organization representing the countries of the Sahel. Together, donors and Sahelians agreed to commit themselves to a coordinated and sustained effort for development in the Sahel region, striving for a time when the region's people could be assured a stable and sustainable food supply. The United States has played an important role in this approach.

The Sahel Development Program[1] and the Club du Sahel/CILSS Framework

The Sahel Development Program (SDP) was created in 1977 by an amendment to the Foreign Assistance Act. SDP institutionalized the U.S. commitment to the unique Club/CILSS framework of development assistance—a coordinated, long-term, multinational effort by major Western industrialized nations in support of the CILSS group of severely drought-affected West African States.

The Club/CILSS framework evolved from international public reaction to a tragic series of drought years (1968 to 1973) in the Sahel that left tens of thousands dead, decimated livestock herds, exacerbated environmental degradation, and disrupted already fragile economies. Club/CILSS set goals to increase self-sufficiency in food under conditions of ecological balance and sustainable growth in the region and to reduce vulnerability to drought by improving agricultural production significantly and stabilizing the environment. The scale and complexity of the challenge required a commitment to a "generation" of cooperation and financial assistance.

Both CILSS and the Club have evolved over the past decade. However, the mandate and operations of CILSS have remained controversial. Although CILSS was created largely as a mechanism to increase aid flows, by the late 1970s it increasingly sought responsibility to implement its own regional projects. But CILSS performance often has been mediocre. Its effectiveness has been constrained by inconsistent member support, uneven leadership, and inadequate technical and managerial capabilities. In the past year, CILSS member states have agreed to limit its mandate to that of a regional think tank and to streamline the organization's structure.

The Club du Sahel has played a significant role in tripling the flow of aid directed to the Sahel. Donors have contributed $15 billion in assistance since 1975. The Club also provided key sector analysis and helped bring the issues of the environment, recurrent costs, and cereal

---

[1] In this study the phrase "Sahel Development Program" or "SDP" refers to the U.S. program authorized and appropriated under Sections 120 and 121 of the Foreign Assistance Act. SDP is the U.S. development assistance program affiliated with the Club/CILSS framework. Economic Support Funds (ESF) and Public Law 480 Food for Peace assistance to the Sahel are not considered part of this program.

Box A.—What Is the Club/CILSS Framework?

Club du Sahel	—	An association of donors and Sahelians.
+ CILSS	—	An organization of nine Sahelian nations.
+ Individual Donors' Programs	—	Each individual donor, including the United States, contributes as it chooses to a regionally focused, coordinated, long-term assistance effort.
= The Club/CILSS framework		

The phrase "Club/CILSS framework" refers to a loosely structured association of donors and Sahelian countries committed to a coordinated and sustained effort for development of the region in Africa. It is a philosophy that unites a variety of participants in purpose, planning, and approach to the region's development.

Also the Club/CILSS framework is a geographically focused international development effort coordinated by the Club du Sahel and CILSS. The Club has its secretariat located at the Organization for Economic Cooperation and Development (OECD) in Paris, France. CILSS (CILSS is the French acronym for the Permanent Interstate Committee for Drought Control in the Sahel) is an intergovernmental organization of nine countries in the Sahel. The CILSS member states are Burkina Faso (formerly Upper Volta), Cape Verde, Chad, The Gambia, Guinea Bissau (admitted in January 1986), Mali, Mauritania, Niger, and Senegal. It has its headquarters in Ouagadougou, Burkina Faso.

policy reform to the attention of both donors and Sahelians. The Club still suffers from some lack of coordination but its role in fostering information sharing and coordination has been appreciable. While the Club's problems are less serious than CILSS's, the Club also suffers from fluctuating support from its sponsors, the uneven quality of its analysis, and disappointing responses from donors and Sahelians following studies and discussions. Few Sahelians participate directly in Club Secretariat work. Despite the shortcomings of the Club and CILSS, the multinational approach embodied in their framework continues to be a unique and positive characteristic of the Sahel effort and this approach does increase the effective use of individual donor and Sahelian resources.

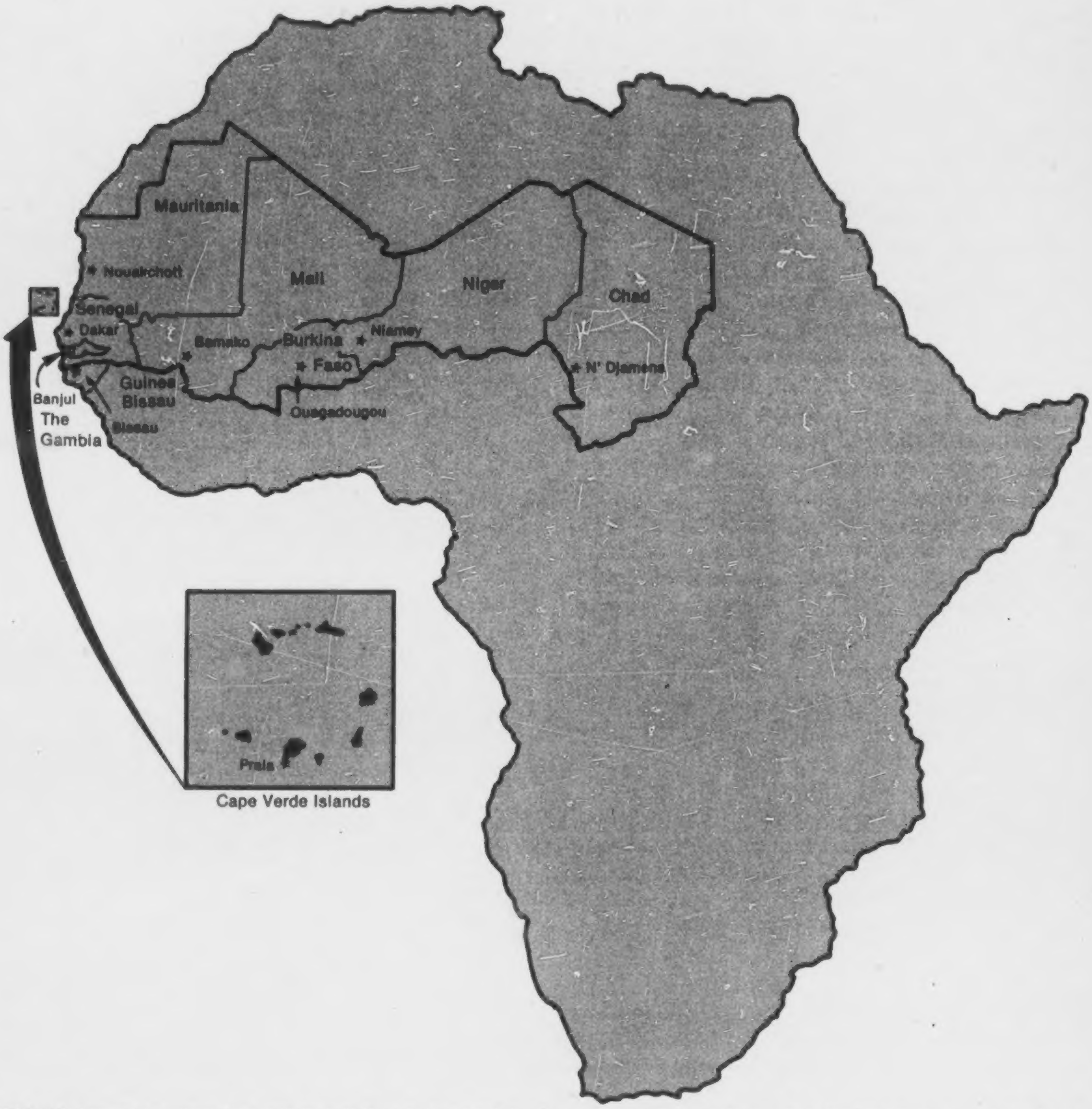
U.S. contributions to the Sahel development effort, through SDP development assistance funds, Economic Support Funds (ESF), and Public Law 480—Food for Peace, have amounted to $1.4 billion between 1976 and 1986. SDP involves three distinct though related elements:

1. the distinct line item funding mechanism and Agency for International Development (AID) management structure created by the 1977 legislation;
2. U.S. support for the multinational and regional aspects of the Sahel effort through the Club/CILSS framework; and
3. the specific strategies that guide the development and implementation of U.S. assistance programs to the region.

U.S. humanitarian and political and economic interests in increased food security, development, and stability in the Sahel have changed little since the original SDP commitment. Although the region has few strategic resources and offers little prospect of commercial opportunity for U.S. business for the short term, it borders a strategically important and more turbulent North Africa. The majority of the Sahelian States are nonaligned, but take pro-West, moderate positions. They have growing political and cultural ties with the United States.

If the issue of food security in the Sahel is not addressed today, the future will bring continued problems and pain.

Figure 1-1.—CILSS Countries of West Africa


Mauritania
Nouakchott
Mali
Niger
Chad
Senegal
Dakar
Bamako
Burkina
Niamey
Faso
N' Djamena
Guinea Bissau
Banjul
The Gambia
Bissau
Ouagadougou
Praia
Cape Verde Islands

SOURCE: U.S. General Accounting Office, *Can More Be Done To Assist Sahelian Governments To Plan and Manage Their Economic Development?* NSIAD-85-87 (Washington, DC: Sept. 6, 1985).

Poverty and Increasing Vulnerability

The Sahel strategy was designed as a regional approach because the countries shared some important ecological, economic, historical, and cultural commonalities. Erratic rainfall has plagued the Sahel for the past decade. But drought has been a major reality in Sahelian life for at least 2000 years. Historically, the region's social, economic, and agricultural systems evolved in dynamic symbiosis with the region's harsh environments. The environmental and economic vulnerability has increased over the past century with growing external dependence during the colonial and post-colonial periods, associated changes in socioeconomic systems, and increases in population growth. There has been a corresponding, gradual erosion of "fall-back" strategies for coping with drought such as a reliance on natural systems and migration. These trends have accelerated over the past 20 years and led to economic stagnation, rising trade deficits and debt, financial crisis, and growing dependence on international aid to meet national food requirements.

While some indices of health, life expectancy, and education have shown impressive improvement, individual Sahelians, particularly people in rural areas, face income levels and living standards that remain among the lowest in the world. In the past two decades, total agricultural production has increased by about 1 percent per year but yields remain low and in fact may be decreasing in certain areas. Agricultural production per capita has declined even more than it has in Africa as a whole (according to one estimate, 24 percent versus 16 percent) (138). Annual production and income levels continue to be determined by the vagaries of rainfall, unstable government policies, and inappropriate market prices.

The Sahelian environment has also come under increased stress. Changing social, economic, and production systems as well as drought, land degradation, and declining fuelwood supplies all contribute to the region's vulnerability. Unless there is appreciable technological change, environmental degradation and high population growth rates will make it increasingly difficult to reduce the region's poverty.

Decade of Lessons

The Club/CILSS effort, and the U.S. SDP contribution within it, have provided modest tangible successes. Thousands of Sahelians have received technical and managerial training; infrastructure (especially roads) has improved; and access to health care and literacy have increased. Sahelian institutional capacity also has improved—as illustrated by the fact that relief efforts following the 1984 drought were much more successful in the CILSS states than elsewhere in Africa and relatively few lives were lost. Despite improvements, the Sahel is still vulnerable; even with 1.2 million tons of emergency food aid in 1985, the drought added to increased malnutrition and general economic decline. Increased agricultural production and environmental stabilization remain elusive goals even as the Club/CILSS framework is one-third of the way into the "generation" of commitment.

Despite this mixed record, Sahelians and donors say that they have learned important lessons that can serve as a foundation for more successful efforts. The physical and human conditions on which Club/CILSS goals were based remain valid. And while those involved sometimes do not agree on specific actions, some consensus has evolved regarding the nature of many fundamental issues. The following paragraphs highlight the lessons learned in the Sahel in the past decade.

Some of the past decade's failure to meet expectations may be the result of too much optimism regarding the existence of applicable technologies. **Many agricultural technologies transferred from other semiarid regions to the**

Sahel proved inappropriate to Sahelian ecological and social systems. Many of these errors were the product of an insufficient knowledge base regarding Sahelian natural and social systems and an ineffective integration of that knowledge into project design and implementation. Sahelian farmers and herders were inadequately consulted and their existing technologies and adapative processes were overlooked. As a result of these setbacks, **new guidelines are emerging for technology development and adaptation.** These include:

- a focus on Sahel-specific solutions based on increasing the existing knowledge base and its effective use;
- increased farmer and herder input and a creative combination of indigenous and external research, technology, and management systems;
- more localized research strategies tailored to ecological and socioeconomic diversity; and
- a focus on the low-resource farmer and herder who comprise the majority of Sahelian agriculturalists.

Agricultural technologies appropriate for the Sahel must be low risk, low cost, sustainable, and create substantial production increases.

Photo credit: World Bank

Throughout the Sahel, families such as this one in Mali grow crops using low-resource technologies.

The need for sustainability is tied to the additional recognition of the need for a strong focus on conservation and improvement of the challenging Sahel environment, especially its tree cover, grasslands, soil, and water resources. An important complementary objective will be to slow population growth, although social resistance and a failure on the part of donors to understand that resistance lessen the prospects for short-term progress. Other areas of critical research needs that have been identified include: varietal and agronomic improvements for major cereal crops; small-scale irrigation technologies; soil fertility; agro-forestry; food processing; agro-climatology; and animal nutrition. In the social sciences, population dynamics, farming systems, marketing, and extension are key areas. **The slow process of developing human resources, in particular, the building of institutional capacity, is essential to long-term sustainability.** Overall, it must be realized that technology development, adaptation, and transfer will be slower and more complex than had been assumed. Thus research efforts in the Sahel must be better organized and coordinated among the multitude of international and national research institutions operating in the region.

How technologies are organized into programs and projects also has been a factor in the poor performance of development assistance. Too often, farmer participation has been more rhetorical than real. Environmental stabilization and institutional development have been poorly served by the short-term, production-related, discrete projects that have dominated assistance to the Sahel. Project design has been overly complex relative to both Sahelian and donor management capacities while the burden of recurrent costs has been too great for financially strapped Sahelian governments. New long-term, participatory approaches which focus on institutional development, are simple to manage, demand few recurrent costs, and give sufficient attention to delivery systems are essential for a more successful strategy for the future.

Misguided government policies are a further factor in poor performance in the Sahel. Cereal pricing policies, artificial exchange rates, inflation, debt management, low investment in food crops, and a range of measures discouraging initiative have proven to be disincentives to increased food production and effective distribution. In recent years, major donors have engaged in a spectrum of dialog, incentives, and pressure to convince Sahelian governments to modify their policy structures. There is general consensus on the need for policy reform and promising major reform programs have begun in several countries. However, so far adequate analysis linking such measures to farmer decisionmaking is lacking and the ultimate impact is unclear. Which segments of society are most likely to benefit from what specific policies, and in what timeframe? How will political factors affect the outcome? Will policy reform alone accomplish as much as its proponents believe? Donor governments' policies on such issues as interest rates, trade, and international debt also affect Sahel development. The effects of large quantities of international food aid that have poured into the Sahel, even in years of relatively good rainfall, remain controversial. Although better steps to determine needs and coordinate donor response have begun under Club auspices, donor commitment to such efforts is tentative. If agricultural strategies are to be effective, the broad economic policy environment, in both Sahelian and donor countries, must be consistent with development goals.

Beyond technologies, modes of assistance, and policies, the multinational effort in the Sahel has suffered from a lack of clarity and agreement on the definition of food security goals[2] and the optimal means to obtain them. Fundamental issues with significant impact on the Sahel's future have yet to be addressed. What should be the balance between investment in rainfed agriculture and that in irrigation? What should be the priority given to expensive river basin development? How much effort should go into developing staple food crops relative to export crops? Despite the particularly poor results of past livestock efforts, is the current *de facto* abandonment of that sector by donors justified? How should more effective livestock approaches be organized? Should resources be directed toward the better-watered south or toward the more drought-vulnerable north? Which groups of people should be targeted—the poorest farmers, the most progressive, women? Each of these choices requires different strategies and has major implications for individuals or groups within each nation. Unless priority is given to addressing these issues, bilateral and multilateral assistance will be less than optimally effective.

Applying the Lessons: The Agency for International Development

AID's effectiveness in applying the lessons of the past decade in the Sahel faces constraints in four areas:

1. the ambiguity of AID's regional Sahel strategy,
2. internal institutional characteristics of AID,
3. the nature of AID's relationship to Congress, and
4. the role of development assistance in overall U.S. foreign policy.

These problems are not unique to the Sahel—they diminish the effectiveness of many AID activities—but they are particularly acute in the Sahel because of the level and special multinational characteristics of the U.S. commitment there.

The evolving strategies, experiences, and lessons accumulated by AID have paralleled those of the other countries participating in the multinational effort in the Sahel. The most recent AID SDP strategy statement (125)[3] is grounded in basic Club/CILSS goals but it also has incorporated many of the lessons learned in the past decade. It places priorities on agricultural research and production, policy reform, health and family planning, training, infrastructure, conservation, and environmental protection and it calls for a balanced and focused program "to identify and bring about the necessary policy and institutional environment to enable development to proceed." The strategy supports "coordination of all donor and Sahelian programs . . . through the Club/CILSS coordination efforts" (125).

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[2] CILSS has considered this goal to mean food self-sufficiency for the Sahel, meaning ultimately growing enough food to feed themselves. Food self-reliance, the term more commonly used now by the Club, includes the concept of growing export crops to earn money to import some food. Food security essentially means providing the people of the Sahel with long-term, dependable access to food.

[3] See app. E containing the Executive Summary of AID's 1986 Country Development Strategy Statement for the Sahel.

But AID's SDP strategy is ambiguous in several areas and its implementation sometimes is not consistent with the past decade's lessons and existing congressional mandates on foreign assistance. The document does not provide guidance for the strategic choices necessary to allocate resources most effectively. The changing focus toward policy dialog, institutional development, and infrastructure—though consistent with the lessons learned—could signal a retreat from direct assistance to the poor, depending on how that focus is implemented. Despite the high priority given to agricultural research, AID has no Sahel-specific research strategy. AID has not seriously addressed the issues of effective farmer participation and attention to the specific role of women in Sahelian production, processing, and distribution systems. Although the United States is the largest single donor of food aid, there is little effective integration of food assistance into overall assistance strategies. During recent years, AID has reduced its multilateral assistance in the Sahel in favor of direct country-to-country assistance. AID has dismantled its Sahel regional planning team and taken a less active role in Club/CILSS activities.

AID's effectiveness in implementing its strategy also is constrained by internal institutional characteristics. The numbers and skill levels of AID's staffing in the Sahel have not been commensurate with the level of U.S. commitment. Although French language and Sahel-specific technical skills have improved, they are still inadequate. The proportion of managers to technicians is high and too few personnel have appropriate skills in agricultural sciences, macro- and micro-economic analysis, and human resource development. The use of outside contractors, particularly from U.S. universities, has increased the talent pool, but quality is still uneven, turnover is high, and institutional learning is limited. Sahelian staff are often underused and AID contact with beneficiaries and counterparts is often inadequate.

AID's program and project design systems are cumbersome, slow, inflexible and often directed toward short-term, physical objectives rather than longer term development goals. Sahelian input, be it governmental or local, is often *pro forma*. Sectoral analysis, project identification, design, approval, implementation, monitoring, and evaluation are poorly linked and the latter two ineffectively used. The incentive system is biased toward the designer and obligator of funds rather than those who effectively implement projects. These factors contribute to a lack of accountability for program results.

AID's subregional management structure for the Sahel adds a layer of management that sometimes complicates relationships between the AID-Washington office and the field missions and between the Sahel management unit and other offices within AID. However, the measure of autonomy granted to SDP because it is separately funded insulates it somewhat from short-term policy shifts and internal struggles over allocation of resources. The separate management structure within AID also facilitates regional coordination with the Club/CILSS.

The third institutional constraint affecting AID's performance in the Sahel concerns AID's relationship with Congress. Congress played an important role in the original U.S. commitment to the Sahel and has continued a high level of interest and support. Nonetheless, aspects of the Congress-AID relationship actually constrain the attainment of foreign assistance goals and the implementation of the SDP. Congressional policy mandates to AID under the Foreign Assistance Act and other legislation are cumulative and without priority. While each may be desirable in itself and the impact of many (e.g., basic human needs, the environment, women in development, child welfare) has been at least partially effective, their number and frequency of changes hamper the development of consistent, long-term strategies. Consequently, these mandates may not be taken seriously and may result in creatively written justifications rather than effective programs.

In another area of concern, procurement and financial controls are often unrealistic relative to West African realities, and they do more to increase costs, create delays, and tie up both AID and Sahelian management time than to accomplish their intended purposes.

The Sahel Development Program is only one of a number of U.S. Government activities that affect the Sahel. Food aid, agricultural price supports, policies on international debt, trade and interest rates have impacts on the Sahel that many experts consider more significant than development assistance. Each of these policy issues is dealt with by different committees of Congress and different executive agencies. Resulting policies are often inconsistent with SDP goals.

The exercise of congressional oversight responsibilities has added to AID's already inordinate paperwork. Further, it has not been effective in meeting congressional information needs and it has had only limited impact on AID's performance. Congress' over-attention to management detail—for instance, requiring notification of minor project funding or timing changes—not only increases paperwork, it also limits the agency's flexibility to respond to evolving needs and opportunities. The working relationship between Congress and AID does not reflect the spirit of partnership with which SDP was begun and which is essential to justify continuing levels of U.S. commitment to the Sahel.

The role of foreign assistance within U.S. foreign policy creates a fourth set of constraints in attaining more specific development objectives. The SDP was born of the U.S. commitment to humanitarian concerns and long-term social and economic development. A long-term, multinational approach was deemed to be the most effective U.S. strategy to achieve those results. The exercise of short-term foreign policy objectives (e.g., political or commercial objectives) can and has conflicted with the long-term perspective. Increased bilateralism, the use of conditionality with respect to political stances rather than development performance, and assistance tied to U.S. commercial interests limit the effectiveness of U.S. commitments not only in the eyes of Sahelians but also those of other donors.

Sahelian and Donor Institutions

Building on the lessons learned during the past decade to improve the development and application of technologies and make strategic choices will not happen automatically. Development efforts in the Sahel will continue to be shaped by individuals and also by the characteristics of both the Sahelian and donor institutions that implement the multitude of programs and projects. On the Sahelian side, despite some progress, institutional capacity remains a major constraint to effectiveness in governmental agencies. Sahelian nongovernmental organizations, including the private sector, have diverse strengths but most have low management capacity and only local impact. Strategies that call for these groups to take over functions that are now imperfectly carried out by governments should be based on a realistic assessment of their abilities. Increased attention to institution-building of all types will continue to be an essential component of donor assistance programs.

Among multilateral and bilateral donors, diverse strengths, weaknesses, types of assistance, and methods of operation are also realities. Given the complexity of needs in the Sahel, an appropriate role should be sought for each. For example, the World Bank has begun to take an effective lead role in policy reform; France, the United States, and the World Bank are involved in agricultural research; the French, Americans, and Germans are active in foresty; and the OPEC countries, the World Bank, and the European Economic Community have provided substantial resources for transportation and infrastructure projects. The International Fund for Agricultural Development (IFAD), the Dutch, and a multitude of private voluntary organizations are particularly geared to local action with low-resource producers. A degree of specialization, possibly along the lines attempted by the Coordination for Development in Africa group (CDA)[4] for Africa as a whole, could improve efficient use of resources. To be effective this would require much higher levels of coordination than are currently the case.

Each organization has its own internal characteristics that affect its ability to participate in the strategic directions called for by the past decade's experiences. Therefore the United States needs to make a more careful analysis of the strengths and weaknesses of its various institutional partners in the Sahel in order to identify the comparative advantages of each in relation to AID's development strategy. This analysis must be ongoing and flexible because strengths and weaknesses change over time, as will elements of the strategy. U.S. funding and coordination efforts need to be based on this analysis. For example, the United States has strong technical skills that give it an especially important role in supporting Sahelian agriculture.

Other U.S. Actors in the Sahel

In addition to AID, a multitude of public and private U.S. organizations operate in or affect the Sahel. The Peace Corps, the African Development Foundation, the National Oceanic and Atmospheric Administration, and a wide range of American private voluntary organizations have programs in the Sahel. Despite the level of overall U.S. commitment to the Sahel, few of these other actors have developed Sahel-specific strategies. And while the independence of each is essential to preserve their uniqueness and complementarity, better coordination of strategies and appropriate collaboration in implementation would increase the overall impact of U.S. assistance.

Other U.S. Government departments and agencies (e.g., Agriculture, Commerce, Treasury, the Overseas Private Investment Corporation, and the Export-Import Bank) are also involved in decisions that affect the Sahelian nations in ways that can complement or contradict AID strategies. The level and special nature of the U.S. Sahel commitment again justifies additional efforts to maximize consistency.

U.S. private sector investment currently plays a minor role in the Sahel. The reasons for this low level, such as the current risks of investment, language and cultural barriers, and competition posed by the better geographically and historically placed Europeans, especially France, will continue to limit the potential for the short to medium term.

Photo credit: U.S. Peace Corps

The United States provides various types of assistance to Sahelian countries and future options are equally varied. Rose Brayboy is a Peace Corps volunteer from Massachusetts; she is helping Senegalese women make composted fertilizer from local materials.

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[4] The CDA is a coordinating mechanism consisting of seven large donors representing over half the development assistance to Africa. Within the group, the United States has been assigned the lead role in coordinating donor activities relating to agricultural research and health.

FINDINGS AND OPTIONS

Is Further Support for the Sahel Development Program Justified?

Finding: A continued Sahel Development Program has the potential to provide greater food security, sustained economic growth, and a restored environment for the people of the Sahel. In doing so, it also can serve U.S. long-term interests. These objectives can only be reached by modifying both the strategy and its implementation. Current relatively high funding levels and U.S. commitment can be justified only if such modifications are made.

Option: Congress can continue the SDP as a discrete element within AID's authorization and appropriation and as a separate management structure within AID contingent on modifications in its strategies and their implementation. In the event that AID does not modify the program effectively, Congress can end SDP's special status and/or reconsider its funding levels.

The Sahel receives among the highest per capita levels of U.S. development assistance of any of the regions of the world. The SDP's separate congressional appropriation and its distinct management unit within AID underscore the U.S. commitment, favor more consistent funding, encourage congressional and AID attention, focus on long-range strategies, and foster coordination with other donors. But they also increase workloads for both Congress and AID, add to management complexities, and reduce flexibility for managing the reduced resources available. The performance of SDP over the past decade raises legitimate questions as to whether this special status and commitment to the Sahel continues to be justified. What is the likelihood of its future success?

The past decade in the Sahel has resulted in modest tangible accomplishments. But major successes have been less obvious. The past decade's experience has revealed a more difficult path than originally foreseen, although it has also revealed an unexpected resiliency in the region's natural and human resources. Technologies to significantly improve Sahelian agricultural production do not now exist so there is little likelihood of a Sahelian "Green Revolution." But payoffs are beginning to be realized and the foundation that has been built in the Sahel provides cautious optimism for the future—a future where higher levels of Sahelian food security can be achieved and where environmental degradation can be reduced. But it is a vision of the future that is attainable only if the lessons of the past decade are heeded.

The accomplishment of Club/CILSS goals will not be determined by donors. Development in the Sahel is the task of Sahelians. They, however, have neither the financial resources nor the skills to do it alone. The manner in which Sahelians and donors have worked together is a unique and increasingly promising feature of the Sahel effort. In that partnership, many Sahelian leaders have recently made difficult and politically risky decisions in such areas as policy and fiscal reform and the improved allocation of limited investments. Sahelians have shared and learned from the lessons of the past decade. Such an atmosphere is a necessary condition to obtain positive results from external assistance.

While donors as a group can facilitate the efforts of Sahelians, no single donor can have such an impact. In the Club/CILSS framework, each member possesses a portion of the responsibility and a portion of the potential. The United States has strong technical skills and development methods particularly appropriate for the strategies essential for the next decade in the Sahel. They are different skills than those assumed in SDP's earlier days. Rather than capital-intensive agronomic techniques, range management methods, and irrigation technologies, the needed expertise now include agricultural research methodologies, farming systems and economic policy analysis, management and organizational development, and data collection and management. The experiences of the past decade have revealed weaknesses in the application of U.S. resources and skills. Changes are being made in policy statements but it is unclear whether changes are also occurring in implementation.

The nature of the challenge and level of commitment implicit in a determination to realize Club/CILSS and SDP goals call for more than "business as usual." The unique aspects of U.S. commitment to the Sahel can only succeed if they are accompanied by realistic and focused strategies, using approaches appropriate to the Sahel, and human and technical resources commensurate with that commitment. Both Congress and AID have essential responsibilities in any effort to modify existing strategies and approaches.

Finding: U.S. support for the Club/CILSS framework and other multilateral approaches has increased the effectiveness of U.S. and other donor assistance to the Sahel.

Option: Congress can continue U.S. support for the coordinated, multinational approach to Sahel development of the Club du Sahel/CILSS framework. It can encourage AID to increase its catalytic role and active involvement in these and other appropriate coordinating mechanisms including those within Sahelian countries (e.g., donor roundtables, consultative groups, ad hoc policy groups).

Option: Congress can continue to fund and actively influence the multilateral organizations and special initiatives that have potential for significant impact in the Sahel (e.g., The World Bank and the International Fund for Agricultural Development's (IFAD) special funds for Africa).

The link between SDP and the multinational Club/CILSS framework has been one of its unique features. The effectiveness of CILSS continues to be problematic but on balance it has increased donor coordination and shared analysis, and opened a forum for discussion between donors and Sahelians that has enhanced the use of U.S. resources. Multilateral approaches and coordination have proven effective and will be essential to continued progress on critical aspects such as policy reform, coherent food aid policies, and focused agricultural research. The World Bank, IFAD, and others have set up special funds for Africa with strong potential for effective programs in the Sahel.

Coordination will be equally important to address the critical strategy choices yet to be made. U.S. costs specifically related to the Club/CILSS activities are minimal (approximately $1.2 million per year) relative to the benefits gained. Any decision to alter commitment to SDP should consider not only the effects on the Sahel but also on U.S. allies who joined in establishing this effort. The United States has been actively involved in both the Club and CILSS, maintaining a low profile but playing an important and catalytic role. Future efforts to improve the performance of these institutions need to be consistent with this long-term partnership. Support for CILSS should be conditional on its making progress toward needed reforms, but such conditionality should not jeopardize the ability of CILSS to build its managerial and technical capabilities. While support for the Club/CILSS framework can continue without a separate SDP management structure in AID and distinct funding line item, these two arrangements can increase effective U.S. support of the regional framework.

Can a More Effective Partnership Be Created?

Finding: The relationships between Congress and AID are factors that limit the effectiveness of U.S. efforts in the Sahel.

Option: Congress and AID could work together to improve communications on the Sahel and make their operating relationship closer to the partnership envisioned in the original Sahel commitment. Increased informal contacts, the possibility of reciprocal intern programs in Washington or the Sahel, congressional participation in AID workshops on strategies and technical themes, and increased contacts between Congress and AID field missions are all possibilities to more effectively share information, coordinate decisionmaking, build trust, and enhance congressional policymaking.

Option: Congress can examine the Foreign Assistance Act in an attempt to limit and prioritize its policy guidelines and modify provisions that may *be contradictory or inadvertently hamper AID effectiveness. The Sahel could offer an opportunity to establish a short list of long-term policy guidelines, streamlined operating procedures, and new procurement, management, and reporting mechanisms. The Sahel also could be used as an opportunity to test multi-year appropriations for the SDP budget and for modifying congressional notification requirements.*

Option: Relevant congressional committees can undertake an analysis of reporting requirements for regular written reports, special written reports, and for various hearings. They can eliminate those that do not serve a justified information function and streamline those that do. They can provide AID with more specific guidance on their information needs and thus increase the match between what Congress needs to know with what AID actually provides. AID's annual report to Congress on the Sahel could be given particular attention in this regard.

The unique commitment implicit in U.S. support for the Sahel provides both the opportunity and the justification to attempt to address the complex issue of congressional/AID relations. The current relationship between Congress and AID has been described as quasi-adversarial by both sides. The result has been a lessening of effective communication and a retreat to a focus more on the form than on the substance of policies and strategies. Poor communication has inhibited the development of a better informed Congress on relevant Sahelian issues. This problem, however, is not unique to discussions of the Sahel but broadly affects AID/Congress relations.

On the congressional side, the lack of trust has blocked consideration of multi-year appropriations for the long-term research portion of AID's program, limiting flexibility and adding a bias toward less appropriate short-term approaches. It has led to increased reporting requirements and strict enforcement in the Sahel of stringent financial control procedures that are unrealistic given the capacities of most Sahel countries. The burden has fallen disproportionately on already overloaded Sahelian managers. Low-level program or project funding changes require time-consuming congressional notification. Poor communication keeps Congress from accumulating enough detailed knowledge to make effective policy decisions on vital development issues.

On the AID side, the problems of its relationship with Congress translates into too much time and energy devoted to congressional relations, and the overselling of its program, leading to unrealistic expectations in Congress, overreaction to reporting requirements, insufficient understanding of the information needs of Congress, and the failure to use effectively the flexibility it has over such things as procurement regulations and the use of "no-year" funds.

Official U.S. policies guiding foreign assistance are contained in the Foreign Assistance Act of 1961 and its subsequent amendments. Over the years, Congress has added new priorities and mandates (e.g., basic human needs, environment, women in development, capital-saving technology) through policy directives, earmarked funds for special purposes, and required issue-specific reporting. It has rarely removed previous mandates nor ranked the importance of existing ones. The rapidity with which new mandates are added and their cumulative weight provide AID with little consistent guidance on U.S. objectives and priorities, limit flexibility to respond to specific local needs and opportunities, and work against the long-term consistency required for Club/CILSS goals.

Finally, other actions taken by Congress can indirectly affect the effectiveness of AID development efforts in the Sahel. The influence through Congress of domestic interest groups whose particular "interest" may or may not be consistent with effective development strategies can at times restrict or even conflict with AID objectives. One example is procurement requirements, so-called "tied aid" that requires U.S. sources of equipment and technical expertise. In the Sahel these measures dramatically increase the costs of operations, provide little long-term commercial benefit to U.S. businesses, while foregoing opportunities to encourage local productive capacity and skill development. They also deter donor coordination since each donor has distinct requirements responding to its own interest groups, and thus increase the administrative burden on Sahelian governments.

Is the Strategy Commensurate With the Commitment?

Finding: AID's regional strategy statement for the Sahel is largely consistent with the lessons of the past decade as well as with the central thrust of the Foreign Assistance Act, which directs AID to focus on the direct alleviation of poverty. In several respects, however, the strategy statement is ambiguous and questions remain regarding its interpretation and implementation. Congress has the responsibility to ensure AID's clarity in implementation of the strategy. Means of congressional oversight need to be modified to fulfill Congress' intent when it created SDP.

Option: In setting policy directions and conducting oversight of SDP, Congress can select a limited list of policy priorities. These choices would set the principal agenda for Congress' discussions with AID. Congress could also address specific areas unresolved in the SDP strategy, such as allocation of funds to livestock and gender issues.

Option: To exercise its oversight authority on SDP, and to recognize the desirability of a more effective working relationship with AID, Congress can adopt a graduated approach to such an "issues agenda." It could start by clearly communicating congressional policy priorities and issues to AID. It can then use that agenda to focus hearings and reports. If Congress judges AID's response as adequate, it could respond by relaxing procurement, reporting, and other requirements. In the absence of effective AID implementation, Congress could request additional special hearings, special reports, more specific policy mandates, and strict earmarking of funds.

Option: To encourage AID to address key issues and develop essential missing components of SDP, Congress can request AID to explore such actions as: reestablishing a Sahel Development Planning Team, undertaking issue- or sector-specific studies by AID's Science and Technology Bureau along the lines of the current Water Management Synthesis Project, and organizing international workshops/conferences on specific issues similar to its 1985 conference on river basin development. Congress can encourage AID to do analysis by limiting new project starts until these strategy issues are addressed, while maintaining current appropriation levels necessary to fund the analysis process and ongoing programs worthy of continued support.

AID has learned a great deal from its experiences in the Sahel. Its 1984 Sahel strategy document effectively outlines the disappointments of the past and discusses new approaches that promise better results in the future. The results have moved AID in directions espoused by a broad spectrum of Sahel authorities who identify the lack of a conducive environment for development in the Sahel as a major factor in the poor results obtained so far. The unfavorable Sahelian environment is understood to include such elements as policy disincentives, institutional and infrastuctural weaknesses, and the lack of appropriate technologies. Increasing portions of AID's portfolio are being directed to address these constraints. Nonetheless, concerns remain regarding AID's strategy:

- Depending on how it is implemented, AID's Sahel Regional Development Strategy could retreat from a focus on direct assistance to the poor. Selection among alternative measures and approaches and the mix between "constraint removing" and "direct assistance" will determine the probability and length of time required to benefit small farmers.
- The strategy fails to address several key issues essential to the future direction of the Sahel, such as the allocation of resources between irrigation and rainfed agriculture, between food and export crops, between ecological zones, and between categories of farmers. These are not questions that can be resolved easily or quickly yet AID has not given priority to resolving them.
- In its strategy statement and in the implementation of the strategy, AID fails to adequately disaggregate its analysis on the basis of gender nor does it put adequate stress on long-term, environmental sustainability.
- The strategy needs to go further in the process of focusing U.S. assistance to the Sa-

hel on the basis of U.S. capacities and strengths in relation to the needs revealed by the past decade.

- Missing from the U.S. Sahel program are a Sahel-specific research plan, a strategy for the livestock sector, and a consistent approach to population issues. Although mentioned in the strategy statement, in practice AID has yet to implement effective methods for increasing farmer and herder participation and institution building.

Is AID Working Against Itself?

Finding: Institutional characteristics internal to AID are constraints to optimal development and implementation of the U.S. Sahel strategy.

Option: There is little opportunity for specific congressional options in this area because most of the constraints are internal AID/executive branch management issues. But Congress can help to bring these concerns to AID's attention. These criticisms are not new, yet little visible progress has been accomplished. Once again, however, the uniqueness of the Sahel effort and its manageable size provide the opportunity and challenge for AID to test new program and project design, management approaches, and more effective systems of monitoring and evaluation. The contradictions inherent in a regional strategy of largely bilateral programs could be diminished by more regular Sahel Mission Directors meetings, the reestablishment of the Sahel Development Planning Team, the establishment of a separate regional technical support unit either within the Regional Economic Development Support Office in Abidjan in the Ivory Coast or independently in the Sahel, and even the option of moving regional management, currently in Washington, out to the field. AID's willingness to be more innovative could be enhanced by better Congress/AID collaboration on the Sahel, by congressional restraint in its direction and oversight of AID, and by congressional responsiveness to the costs that the development of alternative approaches could involve.

OTA identified three sets of institutional factors that limit AID's effectiveness in the Sahel: staffing, AID's programming and design systems, and its management structure.

Although staff numbers have increased dramatically since SDP's early days, they are still low and and have recently been dropping relative to the number of projects because of budget reductions. Ten years of programming in the Sahel have increased the proportion of staff with Sahel-specific experience. Still, French, local language, and cultural skills largely are lacking. The proportion of high level technical staff is low and the skill mix has not changed with changing strategies. Turnover is high relative to the time it takes to program, design, and implement projects so people who begin a project rarely are held accountable for results. The *de facto* incentive system is biased in favor of the designer and obligator and not the effective implementor of the project. In many posts, local staff—the AID missions' local "institutional memory" and source of vital cultural, economic, political, and technical knowledge—are underused.

AID's systems of designing programs and projects are cumbersome, mechanical, and ineffectively applied. They rarely link analysis between sectors or between the national economy and small-scale producer. The separation of the component parts of the AID project system (i.e., identification, design, approval, implementation, monitoring, and evaluation) limits consistency, programmatic accountability, and institutional learning. It is a system that is geared toward discrete, production-specific projects rather than long-term programs with more process-related goals. The system can move with impressive speed to obligate funds but paperwork requirements and procurement bottlenecks leave gaps of up to 3 years between design and project starts. The monitoring of AID projects is limited by staff number and is poorly integrated into project management. AID does perform significant project evaluations but they tend to be narrow, focusing on limited objectives instead of wider impacts and goals. Evaluation is ineffectively fed back into project re-design.

AID's efficiency suffers from the size and complexity of its operations. Separation and poor coordination between program offices, budgeting, technical support, and evaluation units constrain effective AID operations. Division of authority between Washington offices and the field and between the field missions and contracted project personnel is often unclear, overlapping, and inconsistently applied. The problems inherent in this lack of clarity are amplified under SDP because it has a relatively strong regional management unit based in Washington. Mission directors, under the supervision of the U.S. Ambassador and responding to the requests of their particular host government, have resisted the efforts to enforce a regional strategy. At the same time, the special nature of the Sahel effort actually requires a much higher degree of regional perspective and coherence than elsewhere.

Can Diverse Actors With Diverse Strengths Work Together?

Finding: Greater coordination and collaboration between various U.S. actors operating in or affecting the Sahel would increase the effectiveness of the U.S. effort.

Option: Congress could request that all relevant U.S. Government-funded agencies establish Sahel strategies that would highlight coordination with AID. These could include: the Department of Agriculture (its Public Law 480 component and its technical assistance and research programs); the Department of Treasury (debt and lending policy); Department of Commerce (tariffs and trades) and its National Oceanic and Atmospheric Administration (drought and famine warning system, technical assistance and meteorological research); Peace Corps (village-level technical assistance and organization); and the African Development Foundation (local organization support). Within Congress, an informal group of staff from relevant committees could meet periodically to discuss the consistency of actions under consideration by their respective committees and how these actions affect overall U.S. objectives in the Sahel.

Option: Congress could request AID to take a more active leadership role in fostering coordination among all U.S. publically funded development efforts in the Sahel. Some activities that might be appropriate include: interagency task forces, conference/workshops on technical themes, and in-country coordinating committees. Such an effort will work only if a means is found to ensure informality, voluntary participation, and respect for the diversity and independence of participants.

Option: Private voluntary organizations (PVOs) offer special potential to contribute to the type of strategies that are essential for future Sahel development. Thus Congress could request that an appropriate PVO group such as INTERACTION, PACT, CODEL, or others study and develop a PVO Sahel strategy stressing coordination with AID. The strategy could help PVOs already working in the Sahel and others considering such activities to think strategically and to increase coordination and collaboration with AID, Peace Corps, and others. Such an effort would have to ensure the voluntary participation and desired autonomy of each private organization.

In addition to AID, numerous other U.S. agencies (governmental and nongovernmental) are either active in the Sahel or their actions affect the implementation of SDP strategies or broader Club/CILSS goals. Few of the U.S. public and private organizations working in the Sahel besides AID have a Sahel-specific strategy. The current level of their coordination and collaboration with AID is variable. The diversity of their strengths, weaknesses, approaches, and activities provides both opportunities and risks. As resources become more limited, it will be increasingly important to avoid contradictory actions or duplication of efforts. Thus improved coordination and collaboration are critical.

Other U.S. governmental agencies have a more indirect impact, either through their executive branch actions or by policies set by Congress. In policies and actions as diverse as U.S. farm support, U.S. positions on international debt burden relief, the funding of the various components of the International Monetary Fund, the World Bank and the United Nations affecting the Sahel, support for U.S. investment, etc., decisions are made that have considerable impact on the Sahel. These actions can counteract or complement U.S. development programs. There is no mechanism for and only limited consideration of the consistency of these diverse actions, and decisionmaking responsibility is scattered among various agencies and multiple congressional committees.

Chapter 2

AID's Sahel Development Program and the Club/CILSS Framework

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AID's Sahel Development Program and the Club/CILSS Framework

IN BRIEF . . .

Congress asked the Office of Technology Assessment to study development efforts in the Sahel as part of a larger assessment of low-resource agriculture in Africa. The Sahel is one of the poorest regions in the world and it has been the focus of a concerted, multinational assistance effort. But after a decade of projects and financial aid, there comes a time to take stock: just how effective has development assistance been in the Sahel and what can be learned from those experiences?

The United States has played a major role in the Sahel. The Agency for International Development (AID), as mandated by a 1977 amendment to the Foreign Assistance Act, manages the Sahel Development Program, a comprehensive, long-term approach to reaching food self-sufficiency while accelerating economic and social development. Chapter 2 looks at key aspects of this AID program and the unique multinational Club du Sahel/CILSS framework of which it is a part. Highlights of the chapter include:

- AID's Sahel Development Program is unique among U.S. development efforts because it is a long-term commitment to a multinational effort with a regional focus and it receives separate line item funding within the AID budget.
- The multinational Club/CILSS framework has been controversial and its effectiveness has been constrained by inconsistent member support. CILSS in particular has been hampered by uneven leadership and inadequate technical and managerial capabilities. The Club/CILSS approach, however, has served as a forum to combine and focus the talents and resources of both donor and recipient nations.
- Despite some problems, the Club du Sahel and CILSS, with AID's participation, have made substantial contributions to improving the climate for development in the Sahel, especially in the areas of sector planning, improved coordination, and increased aid flows.

Beginning in 1968, 5 years of severe drought brought death and misery to the Sahel region of West Africa. Tens of thousands of people perished and up to one-third of the area's livestock was lost (14). Brought to the public's attention by the news media, this crisis stimulated unprecedented international relief efforts. Over $360 million of emergency aid was funneled to the Sahel by 1974 (37).

In the aftermath of that tragedy, the concerns of both Sahelian and donor officials turned from relief to recovery and finally to long-term development. Could future crises in the Sahel be prevented? How? And how much would it cost? Reflections on these questions gave birth to a unique experiment in international development cooperation—the Club du Sahel/CILSS framework. The nine countries of the Sahel and their major donors joined together in a cooperative "contract for a generation." Its purpose: to increase the Sahel's dependable access to food and lay the groundwork for long-term development. The United States has been an active participant in the creation and operations of the Club du Sahel/CILSS framework.

THE U.S. COMMITMENT TO CLUB/CILSS: THE SAHEL DEVELOPMENT PROGRAM

By 1974, the United States had become the largest single food aid donor to the Sahel emergency relief effort, a commitment that was to grow into the U.S. Sahel Development Program (SDP) (136). Prior to the 1968 to 1973 drought, U.S. development assistance to the Sahel had been limited in accordance with the Korry Report of the late 1960s (141). This report recommended that the United States confine its assistance program in Africa to a limited number of countries with political, strategic, or economic importance to the United States. But in the years following the drought, U.S. assistance to the Sahel rose steadily reflecting a continued humanitarian interest by the public at large and particularly by the Congressional Black Caucus.

In December 1973, an amendment to the Foreign Assistance Act (sec. 639.B) supported U.S. involvement in an international long-term development effort for the Sahel and provided $25 million for emergency and recovery needs. In July 1974, Congress authorized an additional $85 million and in late 1975 called on the executive branch to begin immediate planning for an international Sahel program with the participation of African countries. The proposed plan, presented to Congress in April of 1976, outlined:

> . . . the substance and sequence of a comprehensive, long-term approach to development in support of food self-sufficiency in the context of accelerated economic and social development (133).

The proposal concludes:

> . . . we are persuaded that the goals of this Sahel development program are attainable. From both the humanitarian and technological point of view, the long-term comprehensive development of the Sahel is a unique opportunity which lies before us today. And the world community can and should accept this challenge (133).

In 1977, a further amendment to the Foreign Assistance Act (Sections 120 and 121) formally created SDP within the Agency for International Development (AID), thus institutionalizing U.S. commitment to the Sahel and to the Club/CILSS framework. Development assistance to the Sahel under SDP (1978 to 1986) has totaled $750 million (not including $91 million in Economic Support Funds and $421 million in Public Law 480 food aid). Total U.S. assistance to the Sahel from 1978 to 1986 has equaled approximately $1.4 billion (see table 2-1).

Table 2-1.—U.S. Bilateral Assistance to the Sahel, 1976-86 (millions of dollars)

Year	Sahel Development Program	Public Law 480[a]	Economic Support Fund	Total
1976	$ 35[b]	$ 24	—	$ 59
1977	45[b]	20	—	65
1978	50	32	—	82
1979	75	25	—	100
1980	75	40	—	115
1981	93	56	—	149
1982	94	45	—	139
1983	85	32	$10	127
1984	103	55	18	176
1985	98	92	43	233
1986 (estimated)	77	44	20	141
Total	$830	$465	$91	$1,386

[a] Public Law 480 assistance data includes World Food Program and emergency food aid but does not include ocean freight costs. In fiscal year 1985, freight costs totaled $104 million.

[b] Development assistance to the Sahel before SDP existed.

SOURCES: **Data on SDP and ESF supplied by:** U.S. Agency for International Development, Bureau for Africa, Office of Sahel and West Africa Affairs, "U.S. Assistance to the Sahel," unpublished data, April 1986.

Public Law 480 data supplied by: U.S. Agency for International Development, Bureau for Food for Peace and Voluntary Organizations, "Public Law 480, Assistance to the Sahel," unpublished data, April 1986.

The phrase "Sahel Development Program" has three usages, referring to three interrelated components. From the administrative/management perspective, SDP is the separate funding line item within the AID budget and the distinct management unit within AID which administers it. Second, it is a novel approach for U.S. development assistance because it is explicit support for and participation in the multinational and regional framework of Club/CILSS process. And finally, it also refers to the specific goals, objectives, strategies, and programs that comprise U.S. development assistance to the countries of the Sahel as expressed in AID's Sahel Country Development Strategy Statement (126). (See app. E.)

THE CLUB/CILSS FRAMEWORK

CILSS is the French acronym for the Permanent Interstate Committee for Drought Control in the Sahel, an organization of nine Sahelian States originally formed in 1973 to coordinate relief and recovery efforts.[1] CILSS has been an influential actor in the past decade's effort in the Sahel, but its mandate and operations have been controversial from the start. It began as a mechanism to alert donors to the situation in the Sahel and to focus appeals for assistance but its charter also suggested that it could play a coordinating role for drought control efforts (37).

At its first official meeting in September 1973, CILSS presented donors with a list requesting over 300 projects totaling $3 billion, an action that set the tone of the early years (75). Donors were noticeably cool to this "shopping list" approach, feeling that careful analysis of the problems should be done first as a foundation for a coordinated strategy. Between 1974 and 1976, while CILSS and donor countries negotiated to determine priority projects, the major donors—France, the United States, the World Bank, and Food and Agriculture Organization of the United Nations (FAO)—commissioned a number of studies of Sahel problems and potential. The studies suggested that the Sahel did indeed have the resources necessary to be self-sufficient in food, or at least to improve considerably its food security, by the end of the century. It would require, however, a coordinated, long-term effort of 15 to 30 years and $15 to $20 billion in new support. Priority, they concluded, would have to be given to agriculture, especially food crops that had been neglected in the past (37,133).

The role and operations of the Club du Sahel side of the Club/CILSS framework was equally born in controversy. Both the chaos of disaster and recovery assistance flowing into the Sahel following the drought of 1968 to 1973 and the potential offered by the CILSS call for a concerted Sahel program clearly indicated the need for a mechanism for coordination among donors and between donors and Sahelians. Yet there was no common agreement on under what auspices that coordination should be accomplished. FAO had established an office for relief coordination as early as 1972 and the United Nations Sahelian Office (UNSO) began operations in 1974, with a focus on the environmental sector. The United Nations Development Program (UNDP) was also active and along with UNSO provided early support for CILSS. Despite the level of United Nations (UN) activity, several donors, particularly the United States, West Germany, and several Sahelian countries, were against a UNDP or UNSO coordinating role. The World Bank, another logical possibility, was not interested.

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[1] The original CILSS members included Burkina Faso (formerly Upper Volta), Chad, Mali, Mauritania, Niger, and Senegal. The Gambia and the Cape Verde Islands were admitted in 1975. In January 1986, the CILSS Conference of Heads of State approved the admission of Guinea Bissau.

The Black Caucus of the U.S. Congress, along with interested AID officials, is given credit for the idea to create a new coordinating structure outside the UN system (37). Their only condition, included in later legislation, was that U.S. contributions would be limited to no more than 10 percent of the combined effort. The major problem encountered was overcoming the wariness of the French Government, whose continuing post-colonial economic, political, and cultural ties led them to consider the Sahel as their special sphere of influence. Eventually, however, the French Government agreed, motivated by changes in internal politics and the growing economic burden of the Sahelian States on the French treasury. Thereafter, the French began to play a leadership role in the Club du Sahel while the United States continued a catalytic but low key approach. Other donors greeted the proposal with varying degrees of enthusiasm. Canada and West Germany were particularly cautious and until recently the World Bank maintained primarily an observer status. As the Club has clarified its role and proven its value, donors have increased their support.

The Club du Sahel is set up as a loosely structured, informal arrangement, without formal membership—more of a forum than a development organization. More than 25 major multilateral and bilateral donors join the CILSS member states in Club activities. It is made up of a small Secretariat located at the Organization for Economic Cooperation and Development (OECD) headquarters in Paris, irregular general meetings (six have been held so far), and a common working group (organized jointly with CILSS) of technicians broken up into sectoral working groups whose responsibility is to map out medium- and long-term strategies and organize ad hoc meetings on technical issues. Both donors and Sahelians participate in its meetings and working groups.

The Club's first meeting was held in Senegal in 1976 where its purpose and mandate were set:

- to support CILSS, the principal agency for regional cooperation in the Sahel;
- to inform the international community on development prospects and needs in the Sahel;
- to encourage cooperation between donors to implement projects requested by Sahelian governments and CILSS and facilitate the mobilization of resources; and
- to be a forum for Sahelian nations to outline their policies and priorities for medium- and long-term development and discuss them with donors (37).

The strategy that evolved out of the working groups and that was endorsed by the 1977 general meeting was based on the primary importance of food self-sufficiency and ecological balance for the Sahel. It emphasized agricultural

Photo credit: U.S. Peace Corps

Increasing food security was one of the primary objectives of the Club/CILSS effort and it remains a major goal of development assistance in the Sahel. Here a Sahelian millet breeder works with a Peace Corps agronomist.

production; ecology and forestry; fisheries; and the integration of new themes such as recurrent costs, cereals pricing, marketing, and storage. Its action program combined infrastructural improvements, human resource development, medium-term production projects, and longer term approaches to develop irrigation potential, particularly in the major river basins. Subsequent meetings refined the strategy in the light of experience. A 1978 meeting focused attention on the crucial fuelwood crisis and encouraged an increase in support for the forestry and ecology sector. A revised strategy adopted in 1980 again emphasized the environment and its link to food self-sufficiency goals. In subsequent meetings, the recurrent cost issue, the role of policy reform, continued coordination problems, and the lack of progress of agricultural programs have been added to the agenda.

The 1984 revised long-term strategy, adopted by the Club and the CILSS Council of Ministers, reflects these changes. Its main elements are:

- to encourage private initiative and limit the extent of government intervention in the development process;
- to emphasize the need for policy reform and the establishment of sound economic foundations as a precondition to development;
- to link the food security objective to overall development of the agriculture sector; and
- to recognize that environmental stability is based on appropriate, integrated planning in agriculture, forestry, and livestock sectors (123).

EVOLUTION AND CONSTRAINTS

Once donor support increased through the Club du Sahel, CILSS began to expand its mandate and its Secretariat in Ouagadougou, Burkina Faso. Through the Club working groups, CILSS participated in important studies and in preparing the 1977 Club/CILSS strategy document and subsequent revisions. CILSS increasingly played a more direct role in developing and implementing regional projects such as a large Integrated Pest Management project. With donor support, it created two specialized institutions, AGRHRYMET (Sahelian Regional Center for Agro-meteorology and Applied Hydrology) in Niamey, Niger and the Sahel Institute in Bamako, Mali. The latter was set up to facilitate information sharing among Sahelian researchers and to coordinate appropriate research projects. Repeating the pattern of its parent organization, the Sahel Institute also began research efforts of its own.

The performance of CILSS, particularly in project management and coordination, has been mediocre. Like many regional organizations in Africa and elsewhere, it has suffered from a lack of member support; political tension among members; and uneven leadership, managerial, and technical skills. In the past, member countries have not insisted on strong accountability. From the beginning, CILSS member countries have been slow to provide financial assistance while the personnel assigned to CILSS had uneven qualifications.

But other problems related to support from member nations have been more fundamental. While welcoming the increased aid flows that CILSS has helped foster, member governments have been reluctant to give CILSS a coordinating role that might interfere with their sovereignty or direct access to donors. CILSS strategy and policy decisions have been poorly reflected in the actions of member States. Nor is the CILSS planning process integrated with those of its members. Donors have found that many projects contained in the CILSS "first generation" program were not part of national development plans or were considered low priority. Many of these coordination and follow-through problems are explained by the fact that the CILSS Council of Ministers is for the most part comprised of Ministers of Agriculture, Rural Development or Natural Resources; these ministries typically play minor roles in policy decisions in most Sahelian States. Also, in-country CILSS national coordinating offices have been poorly staffed and have limited local power.

Donor support also has been inconsistent. The original growth in the CILSS mandate was partially supported by donors of the Club du Sahel. Over time, major donors such as the United States have concluded that while there is a role for regional analysis and dialog, institutional weaknesses within CILSS and political realities make national governments the more appropriate focus for most projects and programs (125,132). For several years, CILSS ignored donor criticisms but in 1985, following a change in CILSS leadership, growing member State dissatisfaction, and increased donor use of conditionality in their financial assistance, CILSS agreed to revise its mandate to become more of a regional think tank and streamline its operations. Although too early to be certain, it appears that CILSS has begun much-needed reforms.

The overall positive impact of the Club du Sahel is also not without some qualification (137). The studies performed by the Club working groups are not all of equal quality nor have the Club/CILSS strategies had much impact on the strategies and sector allocations[2] of either Sahelian governments or donors. For example, although assistance to rural development and rainfed agriculture has grown 7.1 and 16.1 percent each year, respectively, less than one-quarter of all donor assistance is going into rural development and less than half of that supports rainfed agriculture (25). Similarly, assistance to forestry and ecology is growing at an impressive 31.5 percent annually, yet it is still only 2 percent of total aid. (For trends in assistance to the Sahel, see app. A, table A-5.)

While coordination has been the hallmark of Club activities, its lack remains a major obstacle to effective use of development assistance. The partnership between the Club and CILSS is an impressive step in development cooperation, but the Club can be criticized for taking the initiative and leadership away from CILSS at times and because it has few Sahelians directly involved with the work of the Club Secretariat. There has been difficulty translating agreements into action because of political and organizational pressures. For example, the organization has been unsuccessful in encouraging donors to take action to use simplified, standardized project documents to reduce the burden on Sahelian governments.

It has also proven difficult to translate Club-sponsored agreements about donor coordination into clear mandates for field representatives to work more closely together. The extent of the in-country coordination problem is indicated by the sheer number of donors and projects. In 1983 in Burkina Faso, 29 major donors were working on 119 separate projects, including 13 donors active in agriculture (27). In-country consultative groups or donor roundtables organized respectively by the World Bank and UNDP have so far proven to be of limited success due to a lack of clear support from donors' home offices. Over the past 3 years, however, some improvement has been noted. In Senegal and Mali, donors have effectively coordinated strategies in working with the respective governments on the sensitive question of policy reform. Work sponsored by the Club on food aid coordination, though still in embryonic stages, shows signs of progress (27). Club/CILSS-sponsored antidesertification strategies and in-country meetings to consider how to implement strategies and deal with other coordination issues also have promising potential.

CILSS was created to tackle common problems within a group of countries with historical and cultural commonalities and shared ecological and economic constraints.[3] But shared problems are not necessarily enough to be conducive to mutual solutions. The similarity of Sahelian economies and production systems means that there is very little they have to offer each other in trade to increase mutual food security. Some authorities feel that the subregional focus on the Sahel should be gradually shifted to include the coastal economies to the south of the Sahel, which provide better economic complementarity with the Sahel.

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[2] In a development sense, a sector is an area of public investment, e.g., the forestry sector, the livestock sector, etc.

[3] The extent and relevance to technology development of similarities between Sahel states has been qualified following the development experiences of the past decade. See ch. 4.

Coordination with other multilateral and regional organizations remains a problem for both the Club and CILSS. Overlapping memberships and mandates with UNSO, UNDP, CEAO, ECOWAS, the Conseil d'Entente, (the last three are subregional economic coordination bodies), the NBA, OMVS, and OMVG (Sahelian river basin development authorities), and the Organization of African Unity create duplication and lack of coordination. Institutional rivalries have also led to lost opportunities.

The future success of the Club/CILSS may be jeopardized as the flow of assistance to the Sahel diminishes. Aid to the Sahel peaked in 1981 and then declined through 1983. Increases in 1984 to 1985 are largely a reflection of emergency food aid. International economic difficulties, government budget cutbacks in most major donor countries, the drop in oil prices, and competing demands for aid from Eastern and Southern Africa all combine to make future levels of assistance to the Sahel uncertain. The Organization of Petroleum Exporting Countries, which also participates in the Club, supplied $425 million (over 20 percent of the total) in 1981. This fell by more than 50 percent to $200 million in 1983 and is expected to fall further (25). New U.S. commitments for Sahel development assistance have fallen from a high of $103 million in 1984 to a projected $77 million in 1986. The Administration has requested $80 million for 1987. Although the Canadians, Dutch, and Italians have been increasing assistance to the Sahel, it is unlikely that these increases will compensate for the overall decline in aid.

Despite these problems, the contributions of the Club/CILSS process have been substantial. The Club has had a significant impact on the international development program in the Sahel through its regular meetings, the technical analysis and strategy proposals of its working group (which includes both donor and Sahelian technicians), and the ongoing process of reflection, information collection, and dissemination. Its major accomplishments include:

- *Sector Planning and Strategies*: Sector analysis and strategy discussions have had substantial impacts on the content and conduct of both donor and Sahelian programs. The Club has assisted in increasing attention on the priority of agriculture and food production, the fuelwood crisis, the key role of cereal policies, and the problem of recurrent costs. Commissioned studies, and the collection and sharing of knowledge about the Sahel, have provided a solid beginning for an effective database on the Sahel.
- *Aid Flows*: Club activities have played a key role in tripling aid flows to the Sahel. Between 1975 and 1984, total assistance to the Sahel totaled $14.1 billion. (See app. A, tables A-1 through A-3.) Per capita assistance to Sahelians has averaged $44 per person yearly, more than double that for sub-Saharan African as a whole and four times that for Asia (25). Increased aid for agriculture and forestry can be at least partially attributed to Club sector analysis and strategies. (See app. A, table A-5.)
- *Coordination*: The Club has had a dual impact on coordination, helping foster coordination between various donors and between donors and aid recipients. Although there is still need for improvement, the Club has fostered an improved dialog in development assistance. The non-threatening, less formal, "partnership of equals" atmosphere of Club/CILSS meetings and the fact that the dialog has continued for over a decade have built an atmosphere of trust regarding sensitive topics such as recurrent costs, cereals pricing, and the reforms of CILSS. The Club has taken the lead in discussing the coordination of food aid and desertification and has begun organizing in-country progress review meetings of donors and host country officials to take stock of their efforts toward Club/CILSS goals.

The Club/CILSS experience has brought to light some important lessons (37):

- the advantages of subregional cooperation,
- the importance of strategic thinking,
- the value of donor coordination, and
- the necessity for a "contractual" framework.

The failure to heed the latter—to implement agreed upon mutual obligations—has been perhaps the greatest weakness of Club/CILSS during the past decade. Progress in the Sahel depends on the common actions of all—Sahelian farmers and herders, Sahelian governments, and donors. The role of each must be identified and commitments carried out in action. Greater "conditionality" in relationships between all partners is an essential part of improving performance in the future (38). Progress on policy reform and the reform of CILSS are examples of what such an approach can accomplish.

On balance the Club/CILSS approach is an important part of U.S. and international efforts in the Sahel. It has relatively low costs and has made an overall positive contribution in the region. The evolving Club/CILSS mechanism has the potential to improve the effectiveness of the combined contributions of donors and Sahelians. The realization of that potential is, however, far from assured. It will require continued high levels of active participation by donors and Sahelians. Some observers feel, however, that the U.S. commitment has diminished in recent years. While the United States was active in the beginning of CILSS, of late it has turned from catalyst to critic. These criticisms have been significant in identifying needed reforms of both CILSS and the Club du Sahel, but some people have questioned whether the United States is willing to provide the resources to support implementation of the suggested reforms.

Chapter 3

The Sahel: Diversity and Transformation

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IN BRIEF . . .

The United States has played a key and catalytic role in the unique, coordinated, multinational development efforts in the Sahel. The Club/CILSS framework provided an innovative strategy to combine the talents and resources of both donor and recipient nations in a concerted effort to strive for food security in one of the world's poorest and most vulnerable regions. Over the past decade, inconsistent support from both donor and recipient nations, lack of coordination, management problems, and problems translating agreements into action have constrained the effectiveness of the Club/CILSS efforts in the Sahel. Despite these problems, the United States, through AID's Sahel Development Program, has helped the Club du Sahel and CILSS make substantial contributions to development.

These efforts, from the beginning, were designed as a regional approach because the countries shared some important historical, cultural, economic, and ecological elements. Chapter 3 outlines some of the important historical and cultural similarities and looks in particular at the limits of the Sahelian environment and the future of food production in the region. Highlights of the chapter include:

- The environment in the Sahel is diverse, both in the complexity of its ecological systems and in the variety of its agricultural production and socioeconomic systems. These systems are facing a period of rapid change.
- By many measures, such as infant mortality, life expectancy, and literacy, Sahelian nations are among the poorest in the world. Dependency on a limited number of low-value exports, high levels of debt, and other external economic influences limit the ability of Sahelian nations to improve the quality of life for their people.
- One indication of the region's great vulnerability is the growing gap between food production and food requirements in the Sahel. Over the past two decades, Sahelian crop production has grown at approximately 1 percent per year while the rate of population growth during this time was about 2.8 percent.
- Recurrent droughts, poor soils, and other environmental factors have combined with changing social and economic systems to exacerbate environmental degradation in the Sahel.

A key lesson learned in the past decade is that successful development assistance efforts must conform to the human and physical environment. The environment in the Sahel is diverse, both in the complexity of its ecological systems and in the variety of its agricultural production and socioeconomic systems that have evolved over the centuries. Thus development efforts in the Sahel must be designed with an understanding that the region is vulnerable, resilient, and continually changing. This chapter reviews the history of agricultural production, the current and projected situation of poverty and development within the Sahel, the role of CILSS countries within the global economy, the growing gap between food production and food requirements, and environmental constraints.

THE SAHEL YESTERDAY

Great empires—the Ghana, Mali, and Songhai—flourished in West Africa during the period known as the Middle Ages in Europe. In the heart of the Sahel, Timbuktu, Gao, and Djenne were centers of power, wealth, and learning. Caravans of camels brought slaves, gold, and salt across the Sahara desert to the Middle East and North Africa. They carried back textiles, firearms, and the religion and culture of the Islamic empires. Over several thousand years, the trans-Saharan trade brought domesticated livestock and new crops such as rice, wheat, beans, bananas, and yams to West Africa.

People of the Sahel developed complex farming and herding systems that were adapted to the environment. Timbuktu was one of several thriving agricultural regions in the Sahel (66). Farmers raised sorghum and millet, crops believed to be indigenous to West Africa, where there was sufficient rainfall. They developed patterns of shifting cultivation that allowed soils to be replenished by fallow periods of up to 20 years. Other farmers irrigated crops in the floodplains of the major rivers, including the Niger, Senegal, and Gambia, planting different crops as the water receded (known as flood recession cultivation).

Herders similarly developed various pastoral systems. Some drove their herds of cattle, sheep, goats, and camels in no fixed pattern to seek grazing lands (called nomadic pastoralism) in the northern areas bordering the Sahara; others migrated with their livestock in regular patterns (called transhumant pastoralism), often north in the rainy season and south during the dry season, and engaged in some cultivation (called agropastoralism). Another traditional system of livestock farming, sedentary animal husbandry, developed in the southern, higher rainfall zones, but was secondary to cultivation there (8,50). While at times there were tensions between the farmers and herders competing for limited resources, more often theirs was a mutually beneficial relationship where the herders provided milk, manure, and other animal products to the farmers in exchange for food grains and the use of their fields after harvest (crop residues were dry season fodder for their animals). While both farmers and herders produced food primarily for their own subsistence, they also produced enough surplus to feed small nonagricultural populations as well as to survive periodic droughts.

The decline of the great African empire in Mali in the 15th century, and the defeat of the Songhai Kingdom by a Moroccan force in 1591, ushered in a long period of internal instability and raids. The Europeans arrived along the coast in the late 15th century. The Europeans expanded the ongoing slave trade, which fostered these African inter-ethnic wars. Over the course of the next four centuries, 6 million slaves were taken from West Africa (66). Dakar, Senegal became a center of the enlarged Atlantic slave trade in the 17th century, when slaves were sent from Africa to provide labor on the sugar plantations of the West Indies. Traditional production systems, though disrupted by the wars, raids, and slave trade, survived.

Meanwhile, African farmers gradually adopted crops introduced by the Europeans from the New World and elsewhere (e.g., corn, peanuts, cotton, cassava, and fruits) (36,66). The agricultural production systems were land-extensive, but they were sustainable because the population was small. They were also dynamic, characterized by constant innovation and adaptation. Diversified handicraft production was also developed, including textiles made from locally grown cotton. While the majority of agricultural and handicraft production was for subsistence, there was surplus enough for local and regional trade (59).

During the latter part of the 19th century, the French conquered much of the Sahel while England established control over The Gambia. Portugal retained the Cape Verde Islands. These changes further disrupted traditional production systems. Under colonial rule, colonies were considered providers of raw materials to Europe and markets for its manufactured goods. The French and British, once they gained administrative control of the Sahel in the 1890s, promoted export crops, especially peanuts and cotton, damaged local artisan industries by giving favored tax status to European goods, and forced rural people into the cash economy by requiring them to pay taxes in cash.

Efforts to develop export production in the colonial period were of limited success, yet had lasting impact on agricultural production in the Sahel. Successes were limited to peanut production in Senegal and The Gambia (see box B) and cotton production in Chad (59). French policies to encourage export production included taxation, forced labor, and resettlement. Selective investment in research and infrastructure complemented these policies. For example, French efforts to encourage cotton production in the 19th and early 20th centuries failed (66). But in the late colonial period French cotton researchers made available the better adapted "Allen" variety brought from the United States and the French began an ambitious irrigation scheme to encourage cotton production.

While emphasizing production of export crops, French colonial administrators gave only modest attention to food production, which stagnated. They justified this neglect by noting that traditional farming methods changed little, and, except for severe drought years, enough food was produced to feed the people. At the same time, rice was imported to Dakar from French Indochina and sold to the growing urban population. Since it required far less time to prepare, was available and inexpensive, urban residents came to prefer it to locally produced sorghum and millet.

Newly introduced animal and human diseases also disrupted traditional systems in the early colonial period (1890-1920) (100), but the introduction of preventive health measures beginning in the late colonial period probably had a greater effect because it decreased death rates and increased population growth. The population of the Sahel increased from an estimated 9 million in 1900 to 13.5 million in 1940, and grew to 18 million by 1960 (60). Traditional agricultural production systems adapted to some of these many changes, but overall they became less self-sufficient and sustainable.

Box B.—Peanuts: How Colonial Powers Favored Export Crops

The story of the development of peanuts as an export crop in Senegal and The Gambia illustrates how colonial powers favored export crops for obvious economic reasons. Peanuts, desired by the Europeans as a source of vegetable oil for cooking and soap, began to be exported from Senegal and The Gambia in the 1830s. Exports increased as the slave trade was gradually suppressed, and peanuts became the dominant export in the last half of the 19th century. Small farmers with little capital could grow peanuts using traditional tools and methods and usually rotated them with food grains. Wolof and Serer farmers dedicated more and more of their land and labor to peanut production in order to obtain cash needed to pay taxes and to purchase the goods they no longer produced as well as new consumer goods. In addition, colonial rulers cleared new lands for peanut cultivation by conscripting men into forced labor brigades, a practice not abolished until 1946 (66).

With the expansion of the French oil industry after World War II, demand increased. The French introduced improved seed varieties and fertilizer, and land under peanut production increased dramatically (115). In the following decades, increased population, without a concomitant intensification of peanut production, put pressure on the land in the Peanut Basin. Fallow periods grew shorter, eventually giving rise to semicontinuous cultivation in some areas, and ultimately reduced fertility and yields. Cultivators moved to new lands, at first good lands, but later increasingly marginal lands, sometimes disrupting the migratory patterns of the pastoralists; others emigrated to cities. Yet, despite some fluctuations in weather and prices, peanut exports continued to climb, reaching their peak in 1975 to 1976 (59). Over the past decade production and exports have declined principally due to falling returns.

Sahelian nations gained independence from France in 1960; The Gambia won independence from Britain in 1965 and Cape Verde from Portugal in 1975. But the trends accompanying increased production of export crops and integration into the world economy continued, with the support of the new African governments, the French, and providers of development assistance. Agricultural development was not given high priority and a large portion of the external funds for agriculture were used to develop large-scale irrigation schemes to grow rice and sugar, two crops that often substitute for imports. While France and the United States conducted some research on sorghum and millet, the majority of foreign aid to rainfed crops in the 1960s went to cotton and peanuts. Meanwhile, food production systems stagnated. Total food production increased because new lands were opened by increased numbers of farmers, but yields began to decline in areas where soil fertility was reduced, especially in Senegal and The Gambia.

SOCIETIES IN TRANSITION IN THE SAHEL

Integration into the global cash economy had profound implications for rural Sahelian societies. The gradual transition of most farmers from generally subsistence-oriented to cash crop production that began in the 19th century even affected those farmer and herder households that did not cultivate cash crops for export. For example, in years with good rainfall surplus food crops—sorghum, millet, rice, and maize—were sold for cash. Increasingly, fruits (e.g., mangos, oranges, bananas, pineapples); vegetables (e.g., tomatoes, beans, onions, cabbage, etc.); and nuts (e.g., karite) were produced for sale. Integration into a money economy also affected off-farm work and incomes of rural people, especially in the dry season, and the various roles of men and women in the household and in different production systems.

Migration

One of the responses to the need for cash in rural areas has been migration and this has resulted in considerable change in nearly every Sahelian village. While migration is not a recent phenomena, it has increased significantly since World War II. It reflects the inequity of wealth and opportunity between Western nations and the Sahel, between urban and rural areas within the Sahel, between export crop and subsistence farmers, and between farmers and herders (33). Cash payments sent home by migrants are a sizable though largely unmeasured part of national income; in Mali, for instance, workers' remittances from outside of the country in 1983 amounted to about $36 million (147). In some areas, remittances received in rural areas can be a more important source of cash than agriculture, yet they are not usually invested in agriculture due to its low return.

Migration, predominantly by young men, can be either temporary—often alternating with the short growing season—or permanent. When young men migrate for seasonal work to the export crop farms, or even to the large palm oil, coffee, and cocoa plantations in the coastal States, the burden on women, the elderly, and children who grow food crops at home is often increased. However, family incomes are increased by migration, and migration is a risk-reducing strategy for farm families because even in times of drought there will be some income. Migration may occur to gain access to new land or to exchange labor for cash on larger farms, in cities, coastal States, or even Europe. It may also occur as a reaction to drought and increased pressure on the land. An example is emigration from the densely populated Mossi Plateau in Burkina Faso to less populated higher rainfall zones, where river blindness is being contained, in the southern part of the country or northern Ivory Coast. By one estimate there are 1.5 million citizens of Burkina Faso in the Ivory Coast: each year 500,000 migrate for work in the dry season, and 100,000 never return (115).

Pastoral Systems in Transition

The various forms of pastoralism in the Sahel have also been affected by the transition to a cash economy. The fattening and sale of beef to urban dwellers using traditional marketing channels provided cash to herders, and supplemented the food and goods they used for trade. The numbers of animals rose rapidly because of preventive health campaigns, deep wells, a decade of higher than average rainfall, and growing demand during the 1950s and 1960s (59). Seasonal movement of the pastoralists has become more difficult in recent years as farming has expanded onto rangelands and movement across borders has been restricted. Several large-scale irrigation schemes claimed areas previously used for dry season grazing or for flood recession cultivation of crops. This restriction on the pastoralists' mobility has increased conflicts over access to land and water resources (69). However, the traditional cooperative relations between farmers and herders are still common: e.g., FulBe pastoralists may tend livestock owned by Mossi sedentary farmers with their herds, and thus ensure themselves use of the farmers' pasture when they migrate south in the dry season. Even while the traditional herding systems have been primarily oriented to subsistence, transhument pastoralists in the Sahel are efficient users of land: a comparative study showed that transhument pastoralists in the Sahel produced more animal protein per hectare than the market-oriented ranches in comparable areas in the Western United States and Australia (8).

The 1968 to 1973 and 1984 droughts decimated many herds, forcing some herders to shift to farming (130) or migrate to the city. During the drought many were forced to sell their animals, their only assets, at low prices to purchase food. The change was most dramatic in Mauritania, where the combined forces of drought, economic modernization, war, and emancipation of slaves have forced pastoralists to abandon their traditional way of life. Between 1965 and 1975 the nomadic proportion of the population decreased from 65 to 35 percent (33).

In other Sahelian countries pastoralists who formerly depended on livestock have turned to mixed systems of crops and livestock because the market is no longer a reliable source of grain or to acquire recognition of land rights (69,106). Perhaps 40 to 60 percent of livestock are no longer in extensive pastoral production systems. Additionally, the presence of tsetse fly and the lack of dry season fodder also constrain sedentary husbandry in higher rainfall areas. Despite these constraints, total herd size returned rapidly to pre-drought levels. Evidence also suggests possible increased concentration among herders (22,67) and new forms of ownership. The sedentarization of pastoralists is being accompanied by an increased number of animals owned by farmers and urban investors. A growing proportion of the traditional pastoralists can only survive by emigration or tending investors' herds (9).

Changing Social Systems

Traditional social systems in the Sahel are also being affected by the changes accompanying development. These changes are affecting the interrelated and diverse systems of ethnic groups, castes, and classes throughout the Sahel. Traditional class structures still function, especially in rural areas, although they are changing as the production systems on which they were based are also being transformed (54). For example, the farmers endowed with preferred land, especially those with large families, have been better able to take advantage of some of the new technologies (84). While customary law still governs land use rights in the Sahel, land ownership is becoming more common. Buying, renting, and speculating in land are occurring and large-scale farmers, merchants, and religious leaders are acquiring land, sometimes working it under types of sharecropping systems (28). In addition to private land acquisition, land concentration in the Sahel is also attributed to acquisition by parastatal organizations[1] in irrigation/river development schemes and unintentional "demographic" land expropriation—when population increases and traditional inheritance systems lead to divisions of land into areas insufficient for family subsistence—resulting in emigration (102).

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[1] A parastatal organization has a mixture of public and private ownership or management.

Development patterns in the Sahel have significantly affected the role and status of women. Studies have demonstrated that development often worsened the situation of African women (7,24,114). In the past, subsistence-oriented economies had distinct roles for men and women, but they were closely integrated into the family agricultural production unit. With the introduction of the cash economy, men generally appropriated the functions relating to cash exchange, while women were left those relating to subsistence production. In the Sahel women play a great diversity of roles within the household, varying with ethnic group, caste, and class (24,111). The allocation of land is usually controlled by men who give preference to the higher value cash crops that they produce and whose cash return they control. The increased labor demands of the new technologies for cash crops often means that women and children spend longer hours in the fields of their husbands or fathers as well as, in some cases, their own fields.

Despite the long hours spent obtaining water and fuelwood and preparing food, rural Sahelian women are increasingly entering the cash economy, supplementing family income in a variety of ways. They market vegetables from gardens, food crops, homemade crafts, and animal products (e.g., meat, leather, milk, cheese, eggs, etc.) as well as engage in small-scale trading, especially in the dry season. Herder women, about whom little has been researched, are generally responsible for marketing milk (68). Since much of this trade is informal, it is not included in national statistics and is often invisible to national planners. The money earned is used to pay taxes; pay for celebrations and transportation; and purchase food, textiles, medicine, school books, and other consumer goods that are transforming rural life.

SOCIAL AND ECONOMIC DEVELOPMENT OF SAHELIAN NATIONS

Profile of Poverty

The Sahelian nations are among the poorest in the world by any standard. By one often-used measure, per capita gross national product (GNP), they averaged about $232 in 1983, far less than that of the developing countries as a whole ($787) (109). Accounting for inflation the real per capita GNP was 17 percent lower in 1983 than 1975 (26). By another measure, the Physical Quality of Life Index, based on a combination of infant mortality, life expectancy, and literacy, the Sahelian nations average 27 compared to 61 for developing and 96 for developed countries (109). Related important points include the following:

- Many infants die before their first birthday, about 145 of each 1,000 born, compared with 15 in the rich nations, and 92 in all developing nations (109). Up to a third die before their fifth birthday (125). This means, hypothetically, that a woman must give birth to three children to help ensure the survival of two.
- The average life expectancy of a child born in the Sahel in 1983 is 44 years, far less than the averages of 59 and 74 years of children born in the rest of the developing and the industrial countries, respectively (109).
- Less than 15 percent of the adults in the Sahel are literate, far below the average of 59 percent in other developing countries (109). Less than a third of primary school aged children are in school; enrollment of male children is double that of female children (147).

Yet significant progress has been made in reducing some aspects of poverty in the Sahel. Comparing these three indicators with those of a decade ago, life expectancy has increased approximately 5.75 years, infant mortality rates have decreased by 25 per 1,000, and adult literacy rates have doubled (see table 3-1). However,

Table 3-1.—The Sahel: Social and Economic Indicators

Country	Population, mid-1984 (millions)	Population growth rate (percent)	GNP per capita, 1983 (U.S. dollars)	GNP per capita growth rate, 1960 to 1982 (percent)	Life expectancy, 1983 (years)	Infant mortality, 1983[a] (per 1,000)	Adult literacy rate[a] (percent)	Primary school enrollment, 1982 (percent of age group)
Burkina Faso .	6.7	2.6	180	1.1	44(38)	148 (182)	9 (5-10)	28
Cape Verde . . .	0.3	2.7	210	NA	61(50)	80 (91)	37 (NA)	NA
Chad	5.0	2.1	80	−2.8	43(38)	142 (160)	15 (5-10)	NA
The Gambia . .	0.7	2.1	290	2.5	36(40)	200 (165)	20 (10)	56
Mali	7.6	2.4	160	1.6	45(38)	148 (188)	10 (5)	27
Mauritania	1.8	2.8	480	1.4	46(38)	136 (189)	17 (1-5)	33
Niger	6.3	2.9	240	−1.5	45(38)	139 (200)	10 (5)	23
Senegal	6.2	3.0	440	0.0	46(40)	140 (159)	10 (5-10)	48

[a] Numbers in parentheses refer to 1970 through 1975.

SOURCES: John Sewell, et al. (eds.), *U.S. Foreign Policy and the Third World: Agenda 1985-86* (New Brunswick, NJ: Transaction Books, 1985); Roger Hansen, et al., *The U.S. and World Development: Agenda for Action 1976* (Washington, DC: Praeger Publications, 1976); and Robert S. McNamara, *The Challenges for Sub-Saharan Africa* (Sir John Crawford Memorial Lecture, Nov. 1, 1985).

national averages obscure social and economic disparities between households, especially in rural areas.

The total population of the Sahel was 35 million in 1984, a number that has doubled in the 25 years since independence (59). Population growth rates range from 2.1 to 3.0 in different countries (109), and now average 2.5 percent for the region (26). This is less than the rate of Sub-Saharan Africa as a whole (3.2 percent) (81). Some Sahelian countries' population growth rates have not increased over the past 20 years (147), in part due to emigration, and population densities are low compared to other developing countries. Yet birth rates are high; about 47 children are born for every 1,000 women each year, compared to 14 in the developed nations. The average woman in the Sahel gives birth to 6.5 children. The World Bank estimates that the population of the Sahel (excluding Cape Verde) will be 52-million in the year 2000, and will almost triple to 92 million by 2025 (81).

About one in five residents of the Sahel lives in cities and Senegal is the most urbanized country (see table 3-2). The average annual growth rate of the urban population over the past decade is nearly double the total population growth. At independence an estimated 7 percent of the population lived in the cities. Yet, if current trends continue one-third of the population of the Sahel will be living in cities by 2000 (37). One consequence of increased urbanization is a reduction in the percentage of people engaged in agriculture, down from 90 to 95 percent in 1960 to about 80 percent now

Table 3-2.—Agriculture-Related Social and Economic Indicators

Country	Percent of labor force in agriculture (1981)	Percent of total population in urban areas (1983)	Annual urban growth rate (1973-83)	Daily calorie supply per capita as percent of requirement (1982)	Percent of GDP[a] from agriculture (1983)	Annual growth rate of agricultural sector (1973-83)
Burkina Faso	82	11	4.8	79	41	1.3
Chad[b]	85	20	6.6	68	64 (1982)	−2.6 (1982)
Mali	73	19	4.4	74	46	5.0
Mauritania	69	25	4.6	97	34	2.6
Niger	91	14	7.0	105	33	1.6
Senegal	77	34	3.8	101	21	0.3

[a] GDP—Gross Domestic Product.
[b] Some data for Chad from World Bank, *World Development Report 1984*.

SOURCE: World Bank, *World Development Report 1985* (New York: Oxford University Press, 1985).

(21). While percentages vary by country, at least 50 percent and probably more than 60 percent of the population is dependent on rainfed agriculture, excluding Mauritania (28); and about one-fifth of the population is principally dependent on herding (140). While the number of people working in agriculture is estimated to increase from 11 million in 1980 to 15 million in 2000, an annual 1.4-percent increase, the greater urban growth rate will mean that where each farmer today must support 2.8 persons, by 2000 each will need to support 3.6 persons (28).

The Sahel in the World Economy

The three pillars of Sahelian exports are rainfed agricultural products, livestock, and minerals (see table 3-3). Sahelian exports are not well diversified, with one or two commodities providing most of each country's export earnings. Senegal has been the only country to at least partially diversify its export economy: peanuts were 50 percent of its export earnings in 1976 (34) but just 13 percent in 1982. Sahelian economies thus are extremely vulnerable to the vagaries of climate and world market prices.

The major export crops are peanuts and cotton, both rainfed crops grown in rotation with food crops by small farmers. Peanuts, also grown as a food crop, are an important export today only in Senegal and The Gambia, where they cover about 40 and 60 percent of the area cultivated, respectively (28). Production, acreage planted, and share of export earnings reached their peak in 1975 and have since declined due to lower prices (which declined 50 percent in real terms from 1975 to 1982), marketing difficulties, drought, soil degradation, and competition with other food crops (59).

Table 3-3.—Major Exports and Share of Export Earnings, 1980-82

Burkina Faso	cotton (46%),[a] livestock (9%)[c]
Cape Verde	fish (65%),[c] bananas (17%)[c]
Chad	livestock (43%),[b] cotton (31%)[b]
The Gambia	peanuts (51%)[a]
Mali	livestock (42%),[c] cotton (41%)[c]
Mauritania	iron ore (57%),[a] fish (43%)[a]
Niger	uranium (81%),[a] livestock (11%)[c]
Senegal	peanuts (13%),[a] rock phosphate (13%),[a] fish (12%),[a] petroleum products (25%)[a]

[a] International Monetary Fund, Bureau of Statistics, *International Financial Statistics Yearbook 1985* (Washington, DC: 1985), 1980-83 data for Burkina Faso, The Gambia, and Mali; 1980-84 data for Mauritania.

[b] Food and Agriculture Organization, *FAO Trade Yearbook 1984* (Rome: 1985), 1980-83 data.

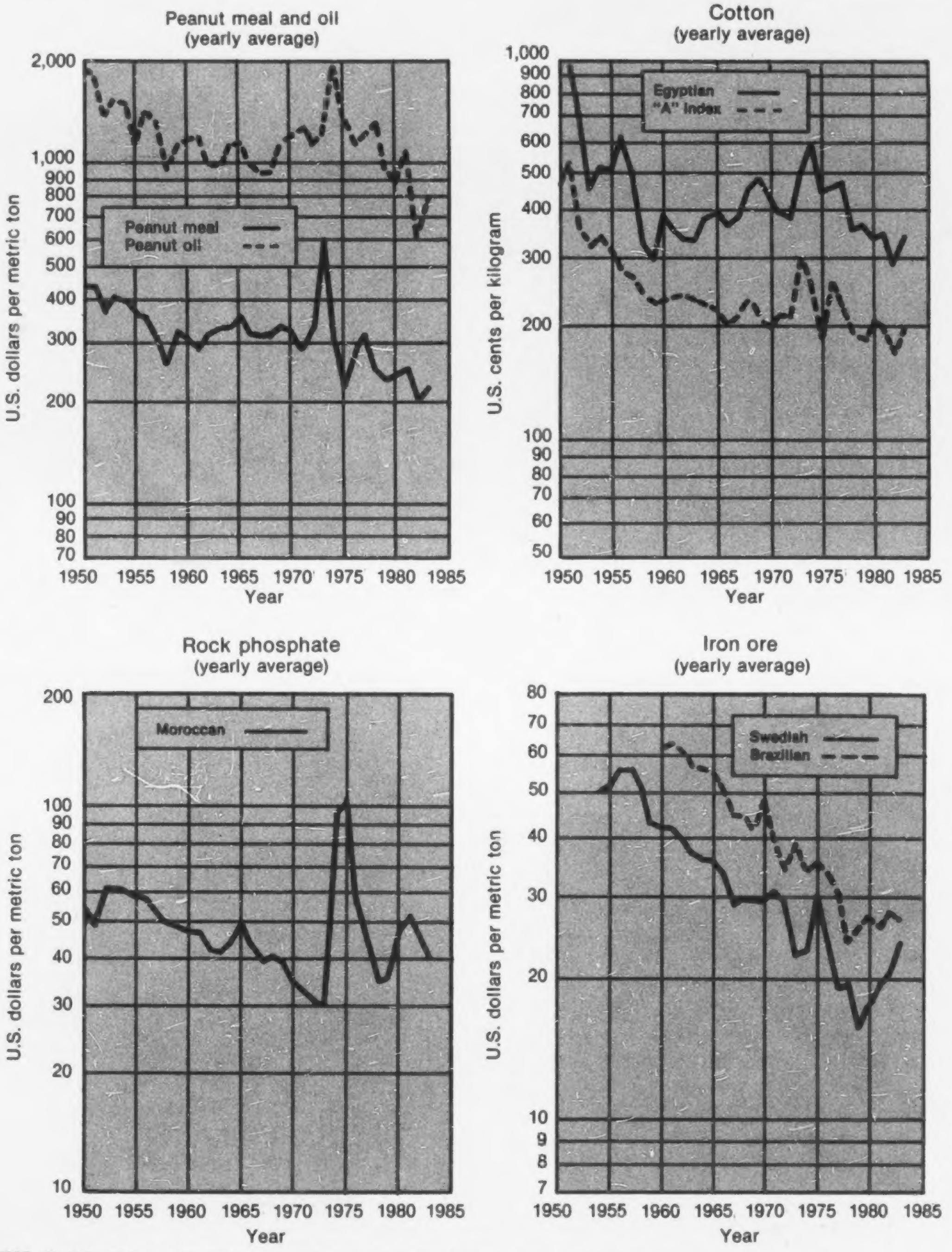
[c] Food and Agriculture Organization, *1984 Country Tables: Basic Data on the Agricultural Sector* (Rome: 1984). Data for livestock are not very reliable. Sources differ on most of these statistics.

Cotton is an important export crop in Burkina Faso, Mali, and Chad. Yields per hectare of cotton, the only crop where production has intensified in the Sahel, increased fivefold between 1960 and 1980. Total cotton production reached a peak in 1978 to 1979, and in some areas both acreage and yields declined in the early 1980s due to the war in Chad, lower incomes from cotton, and the competition with cereals (28,59). However, in Mali and Chad cotton production reached an all-time high in 1984 in the midst of the drought. Future prospects are clouded by the fact that world prices have dropped steeply in the past 2 years as China has entered the international market.

Livestock exports are very difficult to estimate accurately, but they are significant to Burkina Faso, Chad, Mali, and Niger. Exports are primarily to the West Africa coastal States where livestock production is limited because of the tsetse fly. The recent drought devastated herds and exacerbated a long-term trend: the real value of live-animal and meat exports to the coastal countries is estimated to have fallen 50 percent in the last decade (59). On the other hand, earnings from maritime fishing have been steadily increasing. World market prices also have been falling for Niger's uranium and Senegal's phosphate. Demand for Mauritania's iron ore plummeted in 1982 to 1983 (37).

In general, strong world market prices of Sahelian commodities caused production to increase in the 1960s and early 1970s; fluctuating—but generally declining—world market prices, erratic production, and increased costs of imports worsened the balance of trade in the 1970s and 1980s (figure 3-1). However, declining export earnings are but one major factor in the growing debt among Sahelian countries.

Figure 3-1.—Commodity Price Trends for Peanuts, Cotton, Rock Phosphate, and Iron Ore (constant price)

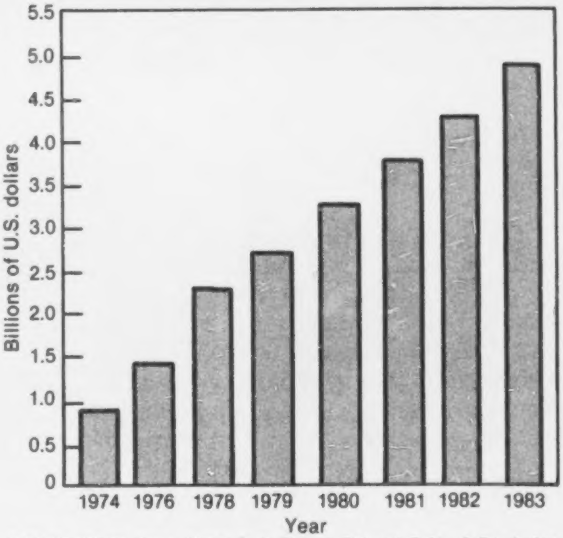


SOURCE: World Bank, *Commodity Trade and Price Trends: 1985 Edition* (Baltimore, MD: The Johns Hopkins University Press, 1985).

Others include: steep increases in oil prices; world recession; high interest rates; increasing protectionism; and internal policies on investment, trade, prices, and exchange rates (80). The growing national debt limits economic growth and pressures governments to increase export earnings (thus to stress export crops over food crops) and borrow more heavily.

The total debt of the Sahelian nations has increased more than tenfold since 1970, rising from $450 million to $4.9 billion in 1983 according to the World Bank or $5.6 billion according to the Organization of Economic Cooperation and Development (OECD) (26). Figure 3-2 shows this trend of rising debt. Their debt now is equivalent to over half of the GNP and two to four times the export earnings of the Sahelian nations as a whole (147). (See table 3-4.) While the total debt is relatively small, comparing debt to GNP shows that most Sahelian nations are more in debt than Brazil (where debt is 30 percent of GNP) or Mexico (49 percent) (147). Mauritania has the highest debt percentage in the world, 178 percent. By 1982, two-thirds of the public debt of the Sahel as a whole came from official development assistance, with great variation between nations (ranging from 44 percent in Niger to 95 percent in Mali). From 1980 to 1982, 75 percent of new loans to the Sahelian nations were from foreign aid (25). While concessional loans provided as aid were primarily responsible for the increase in indebtedness, the majority of debt service is from nonconcessional loans. In the mid-1980s, debt service payments average 32 percent of Sahelian annual export earnings and are rising (26). With the exception of Burkina Faso and Chad, the Sahelian nations have debt burdens that are unsustainable in relation to their resources and growth prospects (26). Since 1981, Senegal has completed five multilateral reschedulings of its debt, Niger four, and Mauritania one (146).

Figure 3-2.—Growing Debt Burden of Sahelian Nations, 1974-83



SOURCE: World Bank, *World Debt Tables: External Debt of Developing Countries, 1984-85 Edition* (Washington, DC: 1985).

Table 3-4.—Debt of Sahelian Nations

					Debt service		
	Amount of debt (million U.S. dollars)		Debt as percent of		Amount (millions of dollars)	As percent of	
Country	1970	1983	1983 GNP	1983 exports	1981	1982 GNP	1981 exports
Burkina Faso	21	398	38	243	14	2	11
Chad	32	136	43	128	14	0	10
The Gambia	NA	192	98	291	4	3	16
Mali	238	927	89	413	37	1	24
Mauritania	27	1,212	178	330	54	7	17
Niger	32	662	51	222	63	10	21
Senegal	100	1,693	69	232	99	4	24

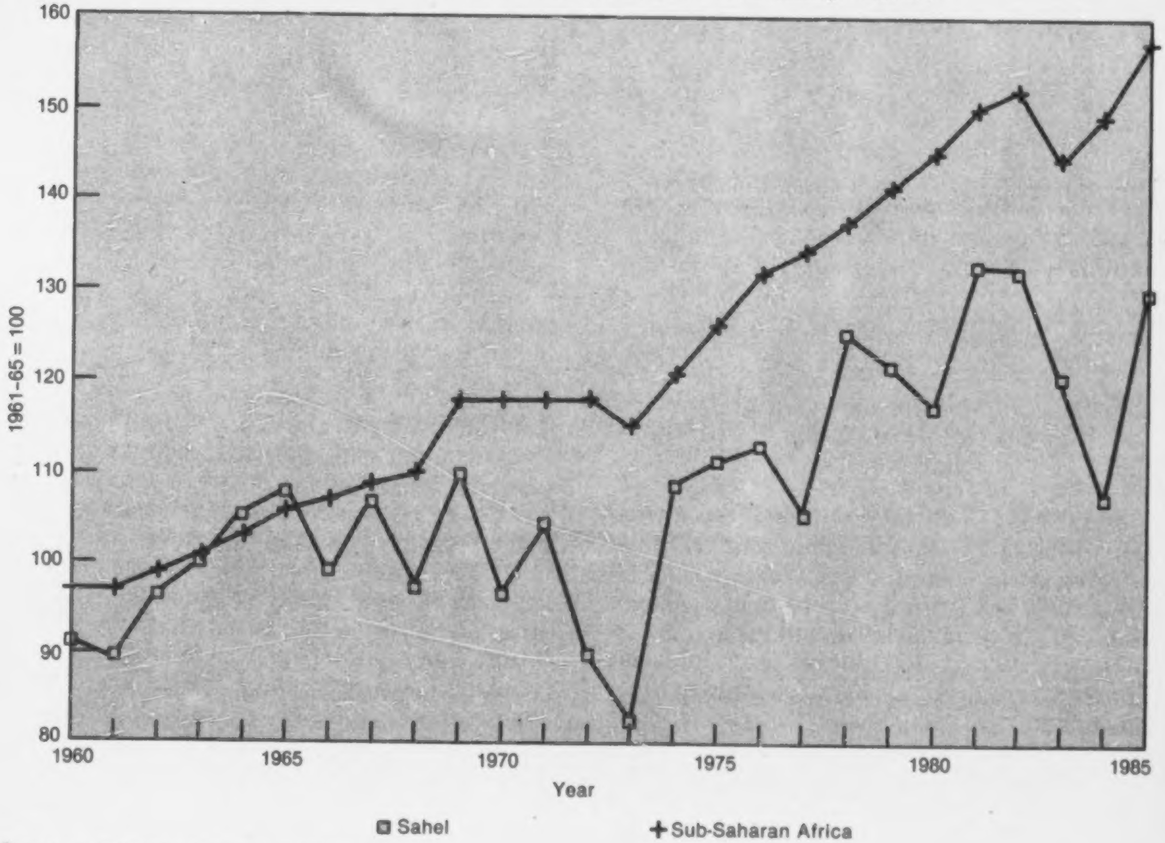
SOURCES: World Bank, *World Development Report 1985* (Washington, DC: 1985); Club du Sahel/CILSS, *Official Development Assistance to CILSS Member Countries in 1983* (Paris: Organization for Economic Co-operation and Development, 1985); Robert S. McNamara, *The Challenges for Sub-Saharan Africa*, (Sir John Crawford Memorial Lecture, Nov. 1, 1985); U.S. Agency for International Development, *Country Development Strategy Statement: Sahel FY 1986* (Washington, DC: April 1984).

THE GROWING GAP BETWEEN FOOD PRODUCTION AND FOOD REQUIREMENTS

> Food security is a must. We must ensure that Voltaics will no longer wake up in the morning and ask themselves what they are going to find to eat that day.
>
> —President Thomas Sankara (90)
> Burkina Faso

The Sahel faces a growing gap between food production and the population's requirements. In the 1960s the Sahel, with the exception of Senegal, was largely self-sufficient in cereals (37). Over the past two decades, Sahelian food crop production has increased by about 1 percent per year (22). Yet almost all increases in production have been due to more land being cultivated rather than to more intensive use of the land and higher yields per hectare. Yields per hectare of the major food crops, sorghum and millet, are lower than in other parts of the world. Production was also adversely affected by two major droughts and successive years of lower than average rainfall. The rate of population growth during this time, however, was about 2.8 percent—more than double that of the rate of growth in cereal crop production (37). Thus, per capita food production has dropped —24 percent by one estimate—since the first half of the 1960s, and has declined more than that of Sub-Saharan Africa (16 percent). (See figures 3-3 and 3-4.) That estimate, by USDA's Economic Research Service (138), excludes four

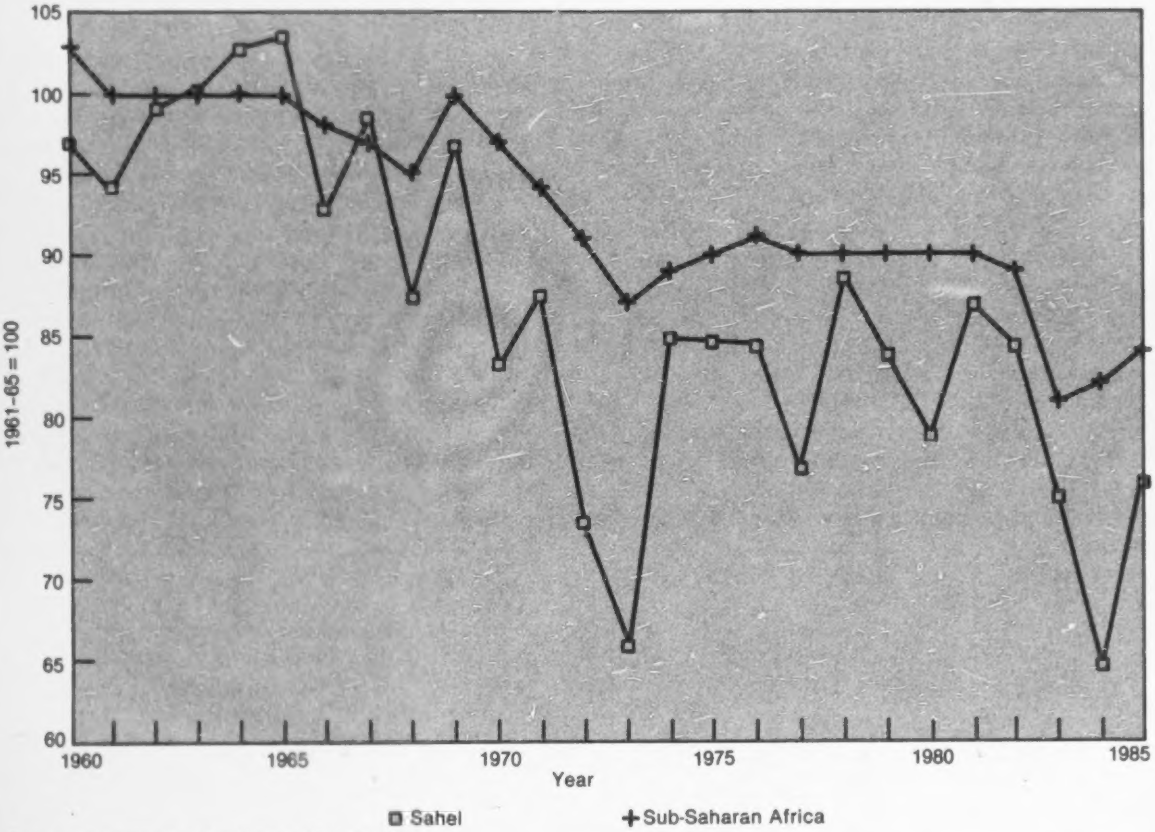
Figure 3-3.—Index of Total Food Production in the Sahel,[a] 1960-85



[a] Data is for Burkina Faso, Mali, Niger, and Senegal.

SOURCE: U.S. Department of Agriculture, Economic Research Service, Africa and Middle East Branch, prepared for the Office of Technology Assessment, February 1986.

Figure 3-4.—Index of Per Capita Food Production in the Sahel,[a] 1960-85



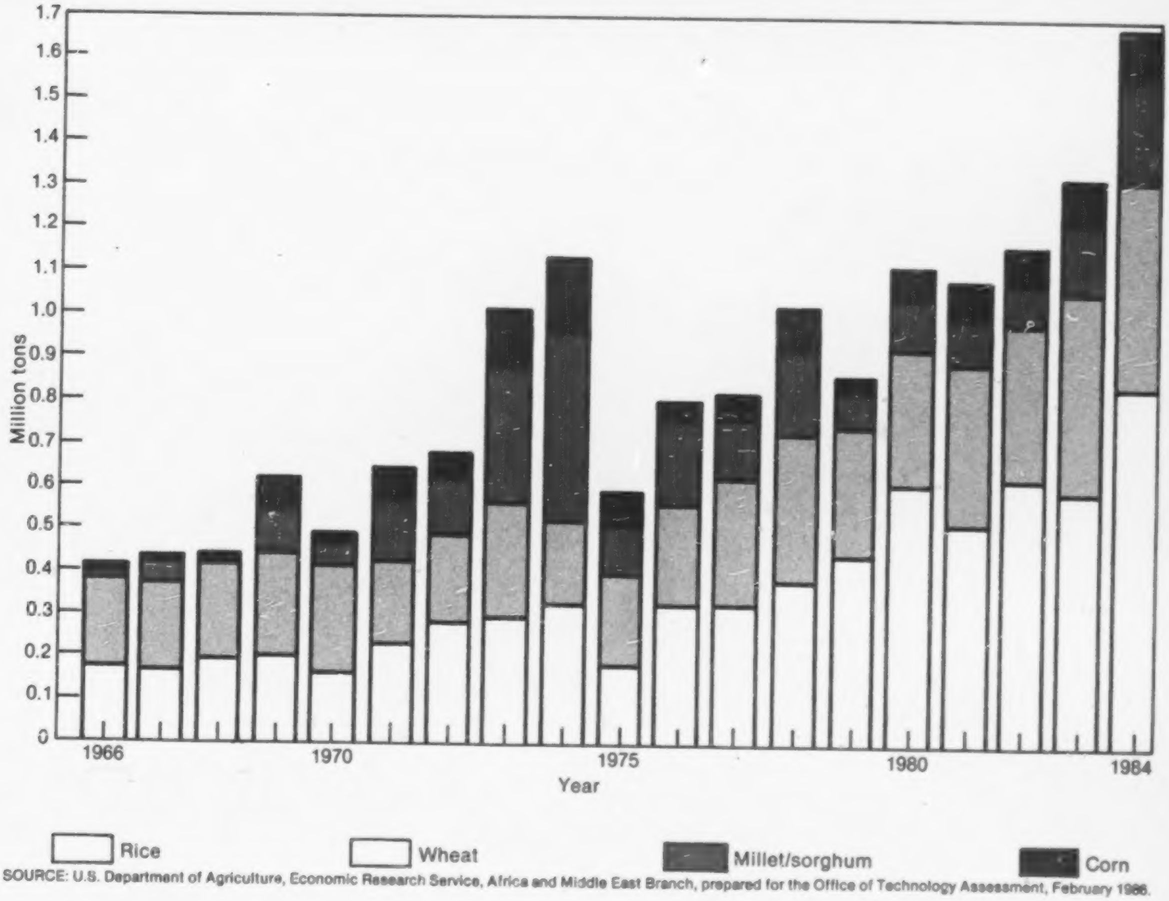
[a] Data is for Burkina Faso, Mali, Niger, and Senegal.

SOURCE: U.S. Department of Agriculture, Economic Research Service, Africa and Middle East Branch, prepared for the Office of Technology Assessment, February 1986.

Sahelian countries that have even greater food deficit problems: Mauritania, Cape Verde, Chad, and The Gambia.

By the mid-1970s, at the time of the formation of the CILSS and the Club du Sahel, this growing gap between food production and food needs was recognized as a critical problem. Achieving food security was identified as the first priority for the new effort. However, donors and recipients differed on what the goal meant and how to achieve it. Sahelian nations have traditionally stressed achieving regional food *self-sufficiency*, a position reiterated in the Lagos Plan of Action, a major policy statement made by Organization of African Unity in 1980. The emphasis on increasing local food production reflects an awareness of their vulnerability to drought and of the disadvantages of an economic dependence on a few export commodities and food aid. The other emphasis, articulated most forcibly by the World Bank (101,153), is on achieving food security by increasing national incomes through trade. Since sufficient food is currently produced in the world, that argument goes, what is required is a balancing of production for trade and production for consumption to reduce the lack of food security caused mainly by a lack of purchasing power. Thus nations and individuals should produce whatever provides the greatest return. The different positions, while not

Figure 3-5.—Sahel Grain Imports by Commodity, 1966-84



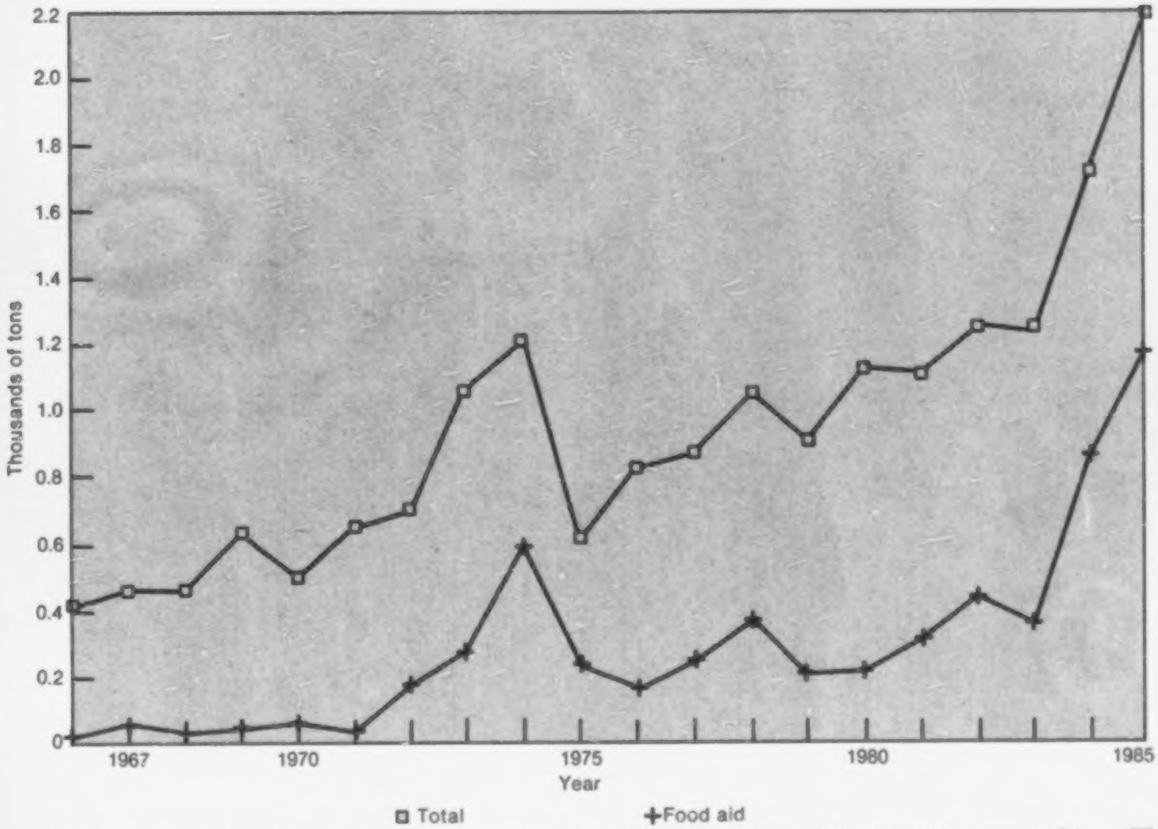
SOURCE: U.S. Department of Agriculture, Economic Research Service, Africa and Middle East Branch, prepared for the Office of Technology Assessment, February 1986.

mutually exclusive, affect debates over relative priority between food and export crops, rainfed and irrigated agriculture, crops and livestock, and other issues that will be described in the next chapters.

In the past two decades, the Sahel's supply of food grains has increasingly come to depend on imports and food aid. The decline in per capita food production has been accompanied by increased imports of cereals. (See figures 3-5, 3-6, and 3-7.) At the time of independence, for instance, the Sahel (except for Senegal) received negligible food imports. During 1976 to 1982, a period between droughts, cereal imports fluctuated between 14 and 18 percent of the total cereals available in the Sahel. By 1985, at the peak of the drought, imports provided one-third of the total cereal available. It is important to remember that the data on food production and consumption in the Sahel are at best only rough estimates (28). Data on imports, including both commercial imports and food aid, are more reliable.

Reduced foreign exchange earnings from export commodities and mounting debt—as well as a host of other reasons ranging from the availability of surplus food from donor nations, exchange rates, and other policies—have meant that the gap between food production and consumption was not met by commercial imports

Figure 3-6.—Sahel Grain Imports, 1967-85



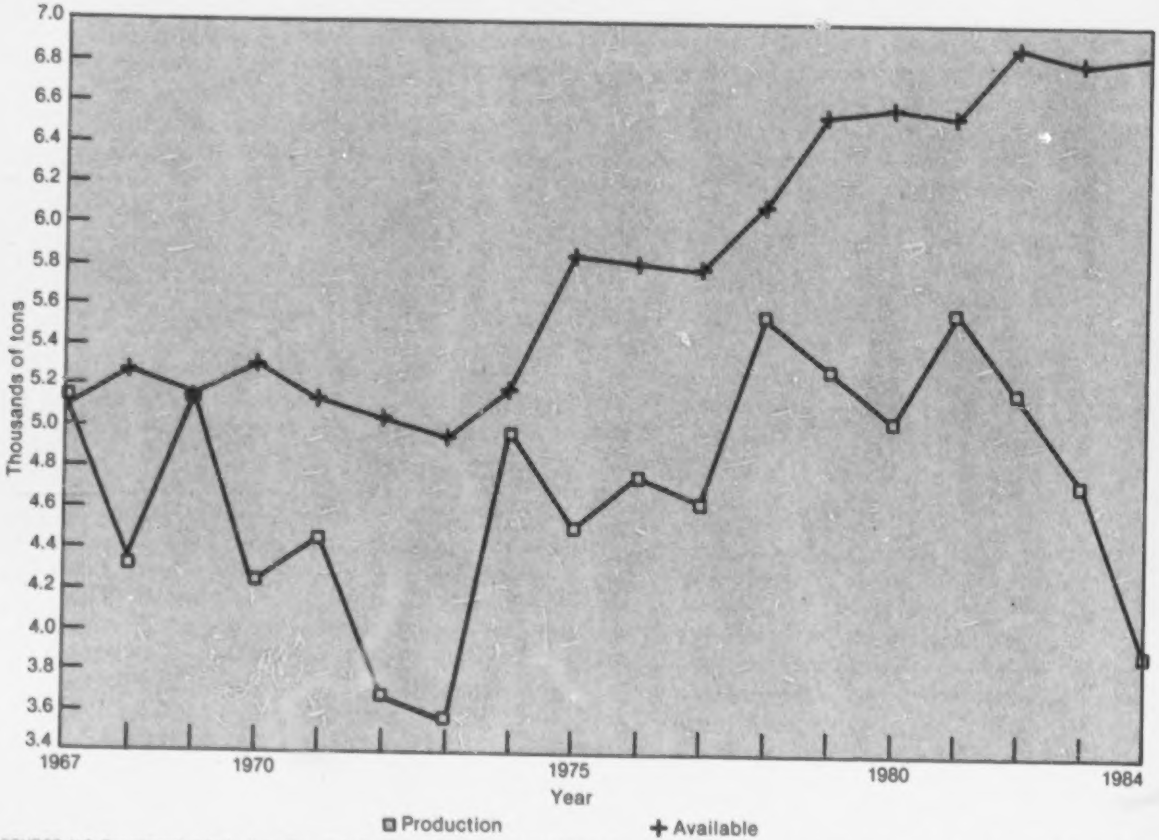
SOURCE: U.S. Department of Agriculture, Economic Research Service, Africa and Middle East Branch, prepared for the Office of Technology Assessment, February 1986.

alone. (See figures 3-6 and 3-8.) Food aid, which was largely unknown in the Sahel before 1970, filled the gap. In 1983, food aid accounted for 85 percent of cereal imports in Burkina Faso, 80 percent in Cape Verde, 75 percent in Chad, 55 percent in Mauritania, 50 percent in Mali, and 22 percent in Senegal (63). In 1985, half of the cereal imports of the Sahelian nations were concessional food aid.

Even with increased imports, the gap between availability of food and food need is not being bridged completely. Current statistics on food availability, even without considering uneven distribution of food, indicate an inadequate diet according to the minimum caloric standard set by the Food and Agriculture Organization (FAO). Per capita consumption of animal products, already low, has also fallen significantly since the 1960s (59). However, cereals comprise only a part of Sahelians' diets and little data exist on consumption of uncultivated foods and animal protein. In rural areas, these are traditional backup systems and are as important as food aid in times of drought.

Subsidized imports have helped keep urban food prices low, but they also have affected people's food preferences. Most food imports are rice and wheat, which reflect both surplus production in other parts of the world and increased demand for these products in urban areas in the Sahel. These foods require less time to prepare than do sorghum and millet. Wheat and rice are now the staple foods in the large cities in the Sahel, while sorghum and millet

Figure 3-7.—Total Amount of Food Grains Available (produced and imported) in the Sahel, 1967-84



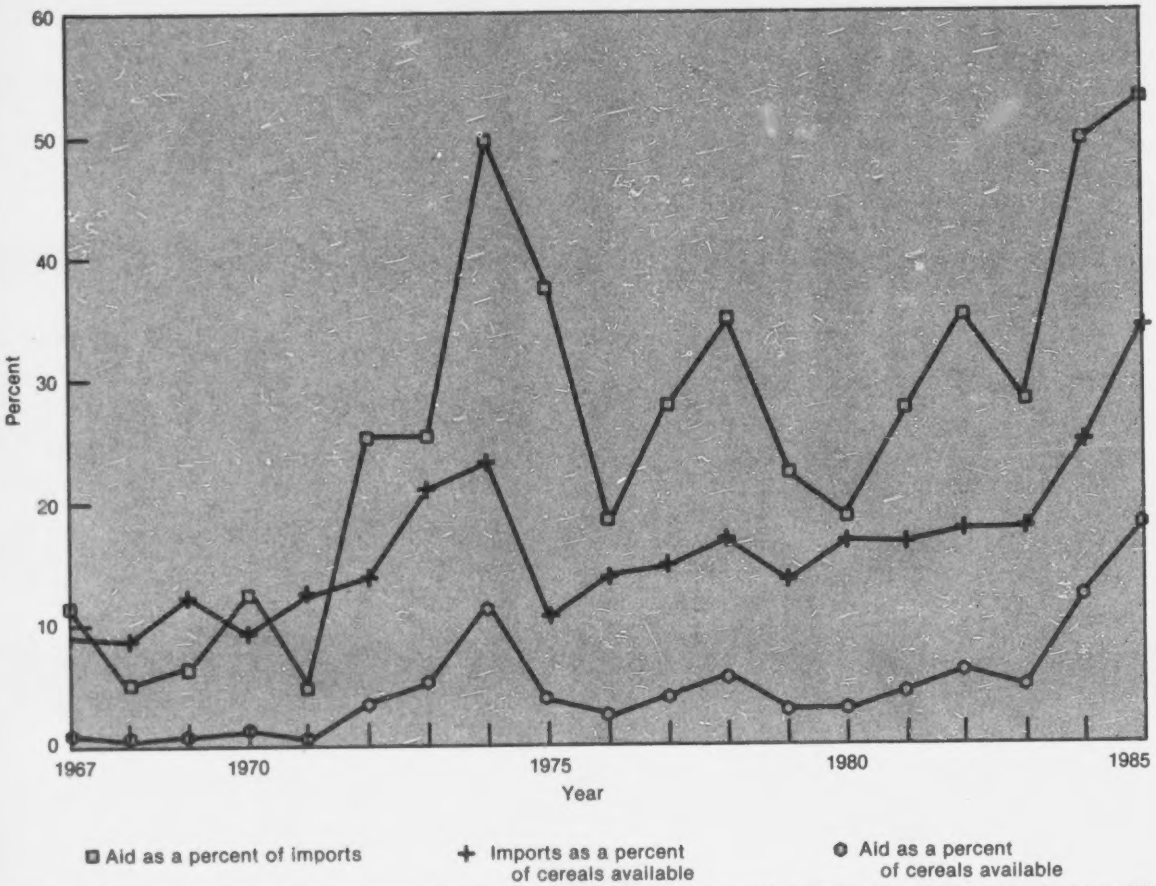
SOURCE: U.S. Department of Agriculture, Economic Research Service, Africa and Middle East Branch, prepared for the Office of Technology Assessment, February 1986.

remain the staples in most rural areas. Rice is also increasingly consumed by the better off rural residents because it is easier to prepare and store (21). This changing demand has an impact on farmers, reducing their incentive to grow sorghum and millet while the climate usually prevents them from growing rice and wheat. One remedy is improved food processing technologies—to reduce women's labor—for traditional cereals. For example, millet grinders are becoming popular in urban and more prosperous rural areas and have begun to increase consumption of millet in these areas.

A number of projections have been made of future food needs, looking at probable trends of both increased demand for and supply of food, for Sub-Saharan Africa (21). All agree that the gap will continue to widen unless there are significant changes in either production or demand. For the Sahel, the Club/CILSS estimated that if productivity per unit of land and per agricultural worker does not increase, the cereal deficit, roughly 800,000 tons in an average year at the beginning of the 1980s, will exceed 3 million tons per year by 2000. Given existing trends, even in years of normal rainfall, approximately one-third of the cereals consumed in the Sahel will be imports or food aid. They observe that "the present system is entering a dead end" (28).

However, the Club/CILSS concludes that the Sahel's resources for cereal crop production—principally sorghum and millet—are greater than its needs. Internal migration and new land

Figure 3-8.—Ratios of Food Aid, Grain Imports, and Grain Availability in the Sahel, 1967-85



SOURCE: U.S. Department of Agriculture, Economic Research Service, Africa and Middle East Branch, prepared for the Office of Technology Assessment, February 1986.

development in higher rainfall areas can help relieve pressure on overworked land. But they will not be enough to provide sufficient food grains to the growing urban population unless the rainfed cereal production systems are intensified and productivity increased through a number of means (28). While the report does not deal explicitly with the problem of changing urban demand, it mentions the need to protect national markets against low-cost imports. The effect of changing urban food preferences on demand presents a challenge to those who seek to increase production of sorghum and millet through agricultural development projects or policy and other reforms. Environmental degradation, exacerbated by the drought, presents another challenge.

A DIVERSE AND CHANGING ENVIRONMENT

The Club/CILSS priority goal of increased food security included a commitment to halting and reversing environmental degradation. Agricultural production in the Sahel is constrained by the environment, especially low soil fertility, erratic rainfall, and land degradation.

The recent drought exacerbated ongoing damaging trends and made them more visible; cattle dying of hunger because of a lack of natural fodder and farmers unable to grow even sorghum or millet on hard-packed fields degraded by wind and water erosion were common scenes.

A Harsh Environment: Climate, Rainfall, and Soils

The climate of the Sahel is extreme: a short rainy season, usually between June and October, characterized by often violent and unpredictable showers, is followed by a long dry season. Rainfall is low, highly variable, and unevenly distributed. Much of the rain that falls is not retained in the soil and runs off. There are high temperature fluctuations between day and night and low humidity during the dry season—with the "harmattan," a dry northeasternly wind, occurring from November through February. Most important, recurrent drought is a permanent feature of the Sahel (86).

Defined ecologically according to average rainfall, the term "sahel" refers to the 200 to 400 km wide semiarid zone between the 200 mm and 600 mm average annual rainfall lines. The Sahel band extends across Africa and is located between the Sahara desert and the savannah of higher rainfall, termed the Sudanian zone.[2] (See figure 3-9.) In the CILSS States, the ecological "sahelian zone" covers 27 percent of Senegal, 39 percent of Mauritania, 40 percent of Mali, 7 percent of Burkina Faso, 50 percent of Niger, and 32 percent of Chad (86).

Of the 530 million hectares in the seven continental CILSS countries, two-thirds are north of the northern limit of cultivation, the theoretical line beyond which rainfed agriculture is no longer possible. Large yearly variations of rainfall patterns, however, mean that the rainfall lines (isohyets)[3] only indicate an average. Soils are suitable for cultivation on about 60 million hectares—only 12 percent of the total area. About 20 percent of this was actually being farmed in the 1970s. About 150 million hectares are classified as rangeland, where grazing is the best use of the land (148). (See table 3-5.)

Soils throughout most of the Sahel are shallow and have low fertility. They especially lack phosphorus, nitrogen, organic content, and water retention capacity. Common problems include: wind and water erosion, concentration of iron (laterization) and aluminum hydroxides, waterlogging, and hard clay layers (148). Soils vary from predominantly sandy to clay. Combined with uneven rainfall, this means that the Sahel is diverse agroecologically, even within a given climatic zone.

Generally—but depending on specific rainfall distribution in a given year—rainfed crop production ceases in areas that receive an average of less than 350 mm rainfall. Millet predominates in the areas up to 600 mm, while above 600 mm sorghum is the major grain crop and peanuts are important exports. Maize and cotton are grown in areas receiving above 1,000 mm of rainfall (125). About 13 million hectares are under rainfed cultivation in the Sahel: 70 percent are under millet and sorghum; 23 percent under peanuts and cowpeas; less than 3 percent each under cotton, maize, and rice (28). Yet 20 percent of the cultivable land is located north of the 350 mm rainfall line (in zone III on figure 3-9). In years when rainfall is less than average, that land is more suitable for pastoralism. This area of shifting use is one where conflicts arise between farmers and herders, or where herders sometimes cultivate crops given sufficient rainfall (148). In times of drought, the farmers and herders in these northern areas are greatly at risk.

The Sahel region suffers periodic droughts; major ones occurred this century in 1910 to 1914, 1930, 1940 to 1944, 1967 to 1973, and 1980 to 1984. BOSTID, after a paleoenvironmental

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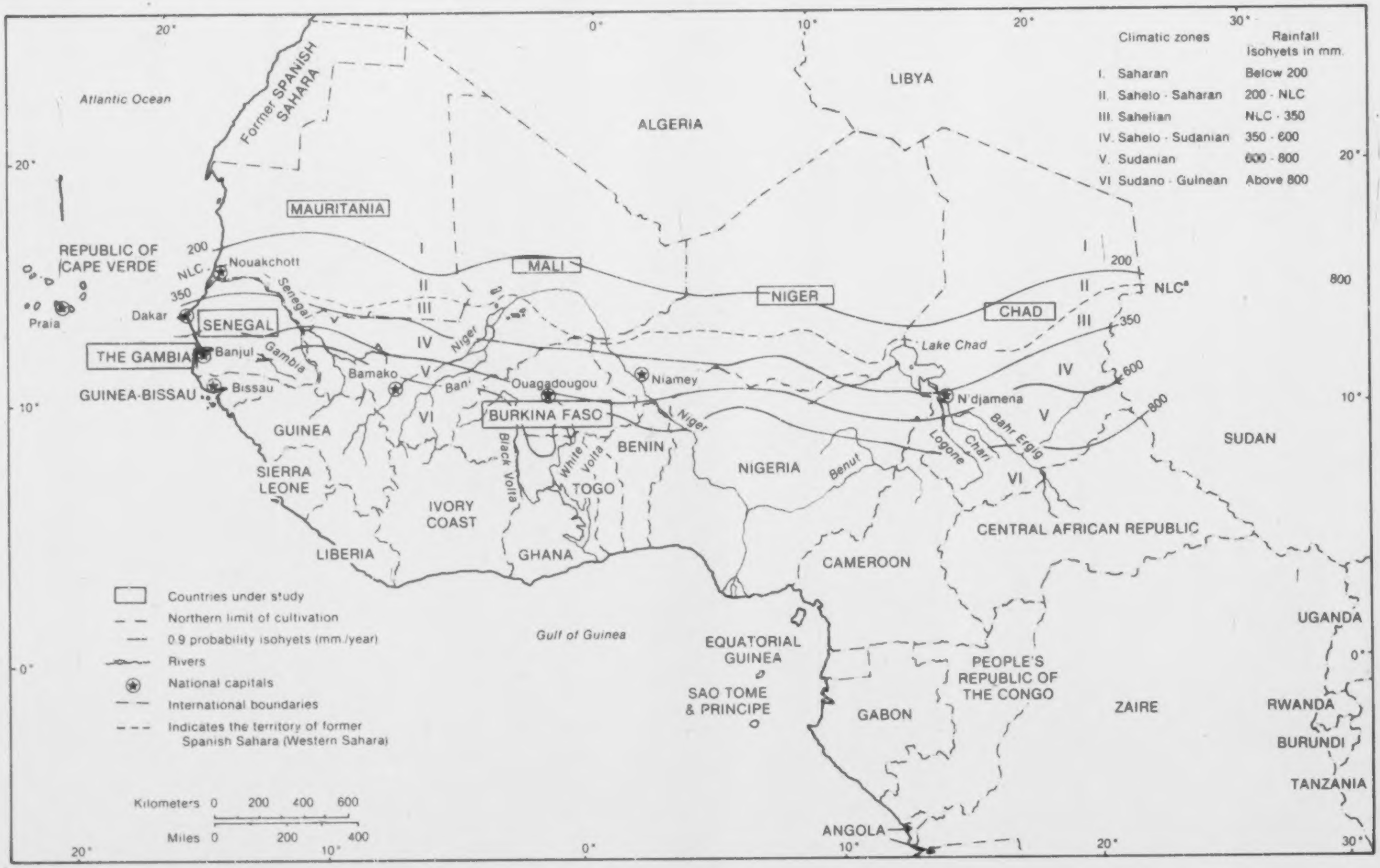
[2] Definitions of the major ecological zones in West Africa, by isohyets of rainfall, used by AID and CILSS, BOSTID and the World Bank in its report on desertification (148) differ somewhat. The World Bank definitions and map, while complex, are used here because of the availability of data about suitability of land use (table 3-5) and sustainable populations (table 3-6).

[3] An isohyet is a line drawn on a map connecting points receiving equal rainfall averaged over an extended period of time.

Figure 3-9.—Climatic Zones in the CILSS Countries


Climatic zones
Rainfall Isohyets in mm.
I. Saharan — Below 200
II. Sahelo - Saharan — 200 - NLC
III. Sahelian — NLC - 350
IV. Sahelo - Sudanian — 350 - 600
V. Sudanian — 600 - 800
VI Sudano - Guinean — Above 800
Atlantic Ocean
Former SPANISH SAHARA
MAURITANIA
ALGERIA
LIBYA
MALI
NIGER
CHAD
SUDAN
REPUBLIC OF CAPE VERDE
Praia
Dakar
Nouakchott
SENEGAL
THE GAMBIA
Banjul
GUINEA-BISSAU
Bissau
GUINEA
SIERRA LEONE
LIBERIA
IVORY COAST
GHANA
TOGO
BENIN
NIGERIA
BURKINA FASO
Ouagadougou
Niamey
Bamako
N'djamena
Lake Chad
Senegal
Gambia
Niger
Bani
Black Volta
White Volta
Benue
Logone
Chari
Bahr Ergig
CAMEROON
CENTRAL AFRICAN REPUBLIC
EQUATORIAL GUINEA
SAO TOME & PRINCIPE
GABON
PEOPLE'S REPUBLIC OF THE CONGO
ZAIRE
ANGOLA
UGANDA
RWANDA
BURUNDI
TANZANIA
Gulf of Guinea
200
NLC
350
600
800
NLC^a
I
II
III
IV
V
VI
20°
10°
0°
30°
Countries under study
Northern limit of cultivation
0.9 probability isohyets (mm./year)
Rivers
National capitals
International boundaries
Indicates the territory of former Spanish Sahara (Western Sahara)
Kilometers 0 200 400 600
Miles 0 200 400

[a]Northern Limit of Cultivation.

SOURCE: World Bank, *Desertification in the Sahelian and Sudanian Zones of West Africa* (Washington, DC: 1985).

Table 3-5.—Land Distribution by Climatic Zone and Suitability of Soils

				Soil suitable for			
		Area		Cultivation		Pasture	
Zone	Rainfall (isohyet)[a]	Million hectares	Percent	Million hectares	Percent	Million hectares	Percent
Saharan	less than 200 mm	296	56			50	14
Sahelo-Saharan	200 mm to NLC[b]	56	11				
Sahelian	NLC to 350 mm	45	8	13	29	28	62
Sahelo-Sudanian	350 to 600 mm	55	10	18	33	34	62
Sudanian	600 to 800 mm	38	7	14	37	19	50
Sudano-Guinean	more than 800 mm	40	8	17	42	19	48
Total area		530	100	62	12	150	28

[a] An isohyet is a line drawn on a map connecting points receiving equal rainfall averaged over an extended period of time.
[b] NLC—Northern Limit of Cultivation.

SOURCE: World Bank, *Desertification in the Sahelian and Sudanian Zones of West Africa* (Washington, DC: 1985).

and historical review, concluded that little significant long-term climatic change has occurred in the Sahel during the last 2,500 years, and drought is an inherent feature of the region. However, the present century may be the driest one in 1,000 years (86).

There is an ongoing debate about the degree to which human actions influence climate and drought. According to one theory, clearing ground cover increases the land's reflectivity and this together with reduced evapotranspiration inhibits cloud formation. The diminished rainfall degrades the environment further in a self-reinforcing process (11,86,148). Current opinion accepts that human actions may affect the local climate, but there is not agreement on their effects on climate over larger areas.

Desertification is also a major concern in the Sahel. Researchers for the World Bank concluded that it is a complex, poorly understood process that appears to be caused by interactions between drought and human abuse of the environment (148). Desertification can be defined as "the formation and expansion of desert-like patches around cities, villages, wells, and other centers of concentrated activity" (87). One form is the expansion of the Sahara desert, but more serious is destruction of the natural resource base further south in the Sahelo-Sudanian zone (zone IV on figure 3-9), where crop yields are falling in many areas. Signs of desertification include a reduction in the amount and diversity of plant and animal species, loss of water retention capacity, lessened soil fertility, and increasing wind and water erosion (148).

Some experts question the data available on the nature and extent of desertification (106). Careful environmental analyses have concluded that the natural systems are resilient, and if the pressure is relieved they can regenerate or be rehabilitated (86,148).

By comparing actual populations with estimated carrying capacities of the land in each of the climatic zones, World Bank researchers concluded that the sustainable rural population, given traditional crop and livestock systems, is 36 million, a number greater than the present rural population of 27 million. Some people, however, dispute the usefulness of the concept of carrying capacity because of its relativity to changes in climate, technology, management, and other factors. Degradation, while occurring in both the northern Sahel and to a lesser extent in the better watered south, was most serious in the middle zones. The middle zones are where the population already exceeds the sustainable level, and it is where trees are the most vulnerable and over-exploited (148). (See table 3-6.)

Impact of Human Activity on the Environment

Traditional land use systems were generally in equilibrium with the environment, however, human activity began having negative impacts on the Sahelian ecosystems centuries ago (86).

Table 3-6.—Sustainable and Actual Numbers of People in the Sahel (millions)

	Crops/livestock			Fuelwood		
Zone	Sustainable population	Actual rural population	Sustainable less actual population	Sustainable population	Actual total population	Sustainable less actual population
Saharan	1.0	0.8	−0.8	0.1	0.8	−1.7
Sahelo-Saharan		1.0			1.0	
Sahelian	3.9	3.9	0.0	0.3	4.0	−3.7
Sahelo-Sudanian	8.7	11.1	−2.4	6.0	13.1	−7.1
Sudanian	8.9	6.6	2.3	7.4	8.1	−0.7
Sudano-Guinean	13.8	3.6	10.2	7.1	4.0	3.1
Total	36.3	27.0	9.3	20.9	31.0	−10.1

SOURCE: Jean Gorse, "Desertification in the Sahelian and Sudanian Zones of West Africa," *Unasylva: An International Journal of Forestry and Forest Industries* 37(4), 1985.

Colonialism, economic development, and population increases in the 20th century have resulted in cumulative damages to the environment. Overuse and abuse of the natural resource base by increased numbers of farmers, herders, and city dwellers as well as by donor and African government-supported development have taken a great toll. Tree cover, grasslands, and soils have all been harmed.

As a result, some experts conclude that human and animal pressure must be reduced to allow the land to regenerate naturally. Various solutions have been proposed, including encouraging migration, increasing the intensity of agricultural production, and increasing rural incomes through other mechanisms. The biggest technical issues to be resolved include loss of trees, destruction of grasslands, and reduced soil fertility.

Loss of the Trees

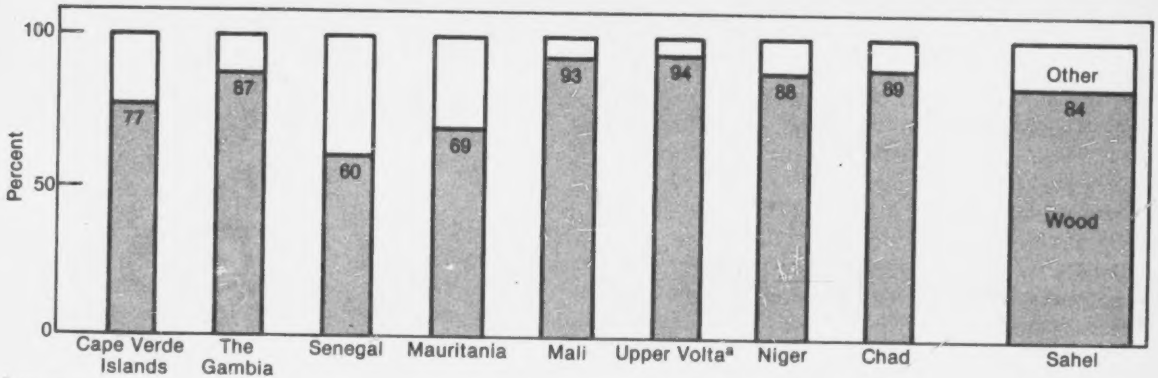
In traditional agropastoral systems, trees provide food, medicine, fuelwood, building materials, and fodder for animals. Leguminous trees also add fertility to the soil and prevent erosion. For example, the *Acacia albida* tree provides shade and increases soil fertility because it fixes nitrogen. Its leaves and protein-rich pods provide fodder for livestock in the dry season and mulch for the soil. But tree cover has been sharply reduced in the past several decades. According to one observer, two-thirds of the acacia trees within 60 miles of the Senegal River in Mauritania have disappeared in the past decade (107).

Of the estimated 18 million tons of wood consumed in the Sahel annually, about 90 percent is for fuelwood. Only 15 percent of the region's energy comes from sources other than wood (29). (See figure 3-10.) The constant search for fuelwood for cooking is one of the major factors causing the loss of trees around cities and villages. Since obtaining household fuelwood is often the women's responsibility, this shortage increases the time and labor women must spend collecting wood. Commercialization of fuelwood and charcoal has accelerated environmental destruction. As a result of increased population and urbanization, far more trees are being lost than are being regenerated or replanted, despite a variety of forestry programs.

The shortage of fuelwood or alternative energy sources especially affects the poor; many poor families now only cook one meal a day. In urban areas of Burkina Faso, 15 to 20 percent of a typical salaried worker's income is spent on firewood and charcoal; in Bamako, Mali the figure is 30 percent. Over 70 percent of the people of Niger face acute fuelwood scarcity (145). A 1983 Club/CILSS study concluded that a growing regional fuelwood deficit will occur in the next 5 to 10 years if present trends continue (29). In all but the most southern areas, fuelwood need already exceeds available fuelwood supplies (148). (See table 3-6.) Six of the eight Sahelian countries have an acute scarcity, where available supplies are insufficient to meet minimum requirements (145).

Other factors contribute to the loss of tree cover. Land is being cleared to plant more

Figure 3-10.—Percentage Share of Wood in the Sahel Countries' Supply of Energy, Mid-1970s



[a]Now Burkina Faso.

SOURCE: Club du Sahel/CILSS, *Energy in the Development Strategy of the Sahel* (Paris: OECD, October 1978).

Photo credit: U.S. Agency for International Development

Fuelwood supplies 85 percent of the Sahel's energy needs and its increasing scarcity alters people's lives significantly.

crops. Shorter fallow periods and unrestrained browsing of animals slow or prevent regrowth. Trees are also lost because of fires: farmers burn fields as part of "slash and burn" shifting cultivation methods (a low-cost method of fertilizing the soil that is not sustainable under short fallow periods); herders start fires to stimulate new growth of grasses for dry season grazing; and hunters burn areas to flush out game. Trees also are cut to provide building materials or forage for animals during droughts.

Destruction of the Grasslands

Pastoralists' traditional ways of using the land were low density and periodic and thus helped protect the grasslands. The current problem of grasslands degradation is due to a number of factors including: increasing numbers of livestock, concentrating herds around deep wells (boreholes) which replaced traditional shallow watering holes, the associated breaking down of controlled access to water and pasture rights, and restrictions on herders' mobility. As farming expanded further and further into rangelands and irrigation projects were developed along major rivers, pastoralists' faced limited access to dry season grazing. Therefore some herders moved into marginal lands or congregated near boreholes and consequently overgrazed the surrounding areas.

Some experts question, however, whether overgrazing is a major cause of desertification. They point out other more important factors that contribute to the degradation of the grasslands, such as expansion of cultivation into areas better suited for pasture, fires, and extended periods of low rainfall (106). Some experts attribute the replacement of more nutritious perennial grasses with annual grasses to overgrazing combined with a long period of less than average rainfall (86,148). However, rangeland experts have been unable to clearly identify that such a change is occurring (48). Others are concerned that browsing, especially by goats, will lead to increased deforestation. Yet goats and sheep have increased more rapidly than cattle since 1970 because they are better adapted to drought (86).

Reduced Soil Fertility

The processes of deforestation and grassland degradation reduce soil fertility by reducing the vegetative cover and making the soil vulnerable to erosion. The expansion of the area planted in cash crops, together with the need to produce more food for an increasing population, has shortened fallow periods, a traditional way to restore fertility. Continuous cropping depletes the soil and fertilizers are used only on a small portion of the land, principally that planted in cotton or irrigated crops. Continuous cropping also makes the land more prone to erosion. In certain areas, the use of the modern plow in place of traditional minimum tillage methods may also contribute to erosion. The use of crop residues for fuel, fodder, or fencing and the decrease in available manure have further reduced the regenerative process of traditional systems and reduced the organic content of the soil. In a self-perpetuating downward cycle, these processes interact with drought and contribute to wind and water erosion to remove the relatively fertile topsoil and reduce the ability of the remaining soil to absorb and store water.

Chapter 4

A Decade of Lessons: Technologies Past and Future

Chapter 4

A Decade of Lessons: Technologies Past and Future

IN BRIEF . . .

The Sahelian environment is challenging. In the past, Sahelian farmers and herders developed a diversity of productive agricultural systems in response to their harsh environment. But changes in the last century have destabilized these traditional systems, leaving the people increasingly vulnerable to the vagaries of weather and economic forces. Changing social, agricultural, and economic systems, including a growing dependence on world markets, as well as drought, land degradation, and declining fuelwood supplies, all contribute to the region's vulnerability. The results are increasing poverty, food shortages, indebtedness, budget crises, and worries about the future.

The Club/CILSS effort, and the U.S. contribution to it, have provided only modest tangible successes, and technologies appropriate for the Sahelian environment have proved elusive to develop or adapt. But donors and Sahelians have learned important lessons that can serve as a foundation for future efforts. Chapter 4 analyzes the decade's efforts at technology development in the Sahel and discusses guidelines for future programs. Highlights of the chapter include:

- Contrary to early expectations, technologies appropriate for the Sahel did not exist and many agricultural technologies transferred to the Sahel proved to be ineffective. Efforts to develop technologies for the Sahel were disappointing in large part because the environment and socioeconomic systems of the region were poorly understood.
- Agricultural technologies appropriate for the Sahel must be low risk, affordable, sustainable, and they must offer at least stabilized production along with the potential for substantially increased returns. Farmers and herders need to be included in project design and implementation and special attention should be focused on the low-resource farmers and herders—women and men—who comprise the majority of Sahelian agriculturalists.
- In general, technology development, adaptation, and transfer is more complex and slower than had been assumed. The lessons learned through both successful and unsuccessful projects in the Sahel can serve as foundations for future efforts, and justify a cautious optimism about the future in the region.

DISAPPOINTMENTS AND ACCOMPLISHMENTS

In 1984 and 1985, major drought again struck the Sahel. Though Sudan and Ethiopia further to the east were the most severely affected, the CILSS countries still required 1.2 million tons of food aid (139). Relatively few people starved, but malnutrition, increased endemic disease, economic disruption, and displacement of people led to considerable human suffering. Agriculture-based foreign exchange earnings declined significantly, adding a crippling blow to national economies already on the brink of bankruptcy.

After almost one-third of the 25-year timeframe set under the Club/CILSS framework, little headway apparently has been made in attaining food self-sufficiency, environmental stabilization, and economic growth. Despite the high expectations with which the "Sahel Experience" was launched and the unprecedented mobilization of over $15 billion in international assistance, the situation in the Sahel remains critical. While there have been exceptions from year to year and from country to country, data point to a decade characterized by declining per capita food production, stagnant or declining yields of major crops, continuing environmental degradation, and little diminution of the region's high vulnerability to drought. Moreover, a 1985 CILSS study predicts continuing deterioration and recurrent crisis in the Sahel if the trends of the past two decades are not radically reversed (22).

Experts have tried to attribute the ongoing problems in the Sahel to a continuing succession of years with low and highly variable rainfall. But one of CILSS's goals was to reduce the region's vulnerability to drought—a goal that obviously has not been met successfully. In part, Sahel experts now admit, the gap between expectations and performance is a product of unrealistic original assumptions and goals (110). Both Sahelians and donors lacked knowledge about fundamental ecological and socioeconomic realities and unrealistically believed that technologies and models of development were available or could be easily transferred and adapted from elsewhere. Disappointment was therefore inevitable. According to Club du Sahel Executive Director, Anne de Lattre: "In those early days, the Sahel program just didn't do its homework" (38).

On the average, the record of individual development efforts in the Sahel is poor. Programs to develop and disseminate improved, appropriate technologies for rainfed agriculture have failed to improve on traditional approaches (128). Programs to develop irrigation have proven costly, slow, and of questionable economic viability. Livestock and range management programs have offered little improvement over existing systems. And despite the oft repeated importance of the environment and particularly the critical status of fuelwood resources, investment in these areas has been low, costs high, and success limited.

Examples of poor performances are visible in all sectors of development. Technologies appropriate to the Sahelian environment and its socioeconomic realities proved illusive to develop or adapt. Systems to deliver those technologies to farmers and herders proved inadequate. Infrastructure was a constraint; management skills were insufficient and projects were poorly designed. The policies of the Sahelian countries proved to be disincentives to growth.

But this litany of failures to meet overall goals and the lack of significant impact on the key indicators of Sahelian food insecurity mask individual project successes and positive changes that have resulted from the past decade's efforts by Sahelians and their international partners. A few of the successes include:

- Better early warning systems, improved logistics, and far better organization and coordination of food aid on the part of both external donors and Sahelians were all factors that helped prevent the 1984 to 1985 drought from causing a wide-scale famine in the CILSS countries. The combined lessons of a decade of activity had resulted in a Sahel better prepared and more capable of responding to disaster.
- A significant factor in the relative success of relief efforts in 1984 to 1985 is the greatly improved infrastructure of the Sahel, especially its road networks. Poor maintenance, however, is a continuing problem.
- Thousands of Sahelians have received training, increasing the long-term capacity of Sahelian institutions. Many are moving into key positions. Through the U.S. Sahel Development Program alone, over 1,350 Sahelians received high-level training since 1978 (123).
- Production of millet and sorghum nearly doubled in Niger; maize production has expanded impressively in Senegal, The Gambia, and Burkina Faso; and cereal yields, though on the average stagnant, have shown some strong local increases such as those

in southern Mali. (22). Improved local varieties of sorghum are being used by farmers in Burkina Faso and Mali.

- Coordinated donor dialog with Sahelian governments on the crucial need for policy changes have resulted in promising reform programs in Senegal, Niger, and Mali. Using the resources provided by Public Law 480, the Economic Support Fund, and the Economic Policy Initiative, as well as its other ongoing bilateral programs, the United States has been a major participant in these efforts.
- Cotton production, using relatively intensified methods, expanded fivefold since the 1960s and reached record levels in 1982 to 1983 and 1983 to 1984 despite low rainfall. Yields per hectare in some areas have reached those of major world producers.
- Access to education and health care has expanded rapidly, producing major increases in literacy and life expectancy rates. New models of primary health care, such as those developed by the Agency for International Development (AID) in Senegal, have succeeded in bringing health care to rural areas and are being expanded elsewhere in the Sahel. An international program to control onchocherciasis (river blindness) gives hope that large tracts of underused land in southern Burkina Faso and Mali might be farmed.
- Despite the poor performance of large irrigation schemes, a growing number of community or individually managed, smaller schemes show promise.
- Although the livestock sector programs have generally been judged failures, there have been instances of success such as improved animal health services and increased use of crop residues for fodder. In Mali, the vaccine production unit of the Central Veterinary Laboratory, supported by the United States, has become largely self-sustaining.
- In Burkina Faso, farmer-level techniques to reduce erosion and improve soil quality have been developed and are being adopted by farmers.
- Dune stabilization in Niger, the use of animals for power in parts of Senegal, and the success of some community reforestation projects all provide evidence that some new technologies are working.

These successes and others may have, at best, slowed the decline in Sahelian production and environmental systems. But they are the basis for a cautious optimism about the future in the Sahel. Though revealing a much more arduous and perhaps slower process of technology development and exchange than had been expected, the experiences of the past decade have not fundamentally called into question the potential of the Sahel to reach Club/CILSS goals of increased food security.

A major change in the past decade has been an impressive increase in Sahelians' skills. This is partly a product of the training and partly the experience learned through the development efforts of the last decade. It is a learning process shared by both Sahelians and donors, and it has helped participants to reach a growing consensus on the nature of the most important issues facing the Sahel (110).

These lessons are beginning to be incorporated into action. Many donors, including the European community, the World Bank, a number of private voluntary organizations, as well as the Club du Sahel and CILSS, have been involved in major evaluations and reorientations of their Sahel strategies similar to those performed by AID during 1983 and 1984. Some Sahelian governments are going through the same process.

The lessons include new perspectives and guidelines for technology development, organization of programs and projects, and the need for policies to allow them to work. Club du Sahel Executive Director Anne de Lattre and others see these shared lessons as the greatest accomplishment of the Club/CILSS process and an essential reason for their optimism.

WHY TECHNOLOGY FAILED TO SOLVE THE PROBLEMS AND MORE PROMISING APPROACHES

Many Sahel development experts now agree that technologies to improve Sahelian agricultural production substantially did not exist at the beginning of the Sahel effort nor do they now (38,45,125). A good portion of the first generation of Sahel projects had been based on the assumption that technologies already available in the Sahel, supplemented by those transferred and adopted from other arid areas, would be sufficient to meet medium-term objectives. This mistaken belief was a major factor in the poor performance of many agricultural development programs.

The best illustration of the disappointing results of technology transfer in the Sahel are seen in the failed attempts to increase cereal crop production. Improved varieties of wheat, rice, and corn were at the heart of the Green Revolution of the 1960s in Asia and Latin America, and it was assumed that better varieties of millet and sorghum, which represent over 70 percent of Sahelian cereal production (28), would do the same for the Sahel. But despite nearly a decade of effort since 1975 (in addition to over 40 years of previous French research), scientists have failed to come up with varieties that perform significantly better than those already in use by farmers in any but the higher rainfall areas (128).

In retrospect, Sahel experts agree that a lack of understanding and underestimates of the importance of key ecological and socioeconomic factors led to the choice of inappropriate existing or imported technologies and delayed efforts to develop technologies that were more appropriate. To a large extent, the knowledge base on which Sahel programs were built was inadequate. But in many instances, and increasingly so as knowledge grew with experience, there was also a failure to integrate what was known into choices of technical objectives and project designs. The lessons of the past decade regarding technology development involve therefore: 1) the identification of key ecological and socioeconomic factors, 2) the specific knowledge regarding those factors learned from experience, and 3) the implications of what has been learned for future strategies.

An Inadequately Understood Environment

The broad question of environmental degradation in the Sahel, particularly the visible progress of desertification, is seen by Sahel experts as a high priority in the future. Recent patterns of agricultural development are contributing factors to degradation (87,93). Increased care to avoid negative environmental impacts in agricultural project activities and the explicit integration of environmental limitations into long-term strategies are essential to the development of technologies appropriate for the Sahel (22).

The rate of destruction of trees is of particular concern given the importance of the forestry sector both in terms of domestic energy requirements and overall environmental stability. Though policymakers have been slow to respond and past actions have been largely disappointing, authorities insist on the need for high-priority, forestry-related development activities (37). Those failures have led to several important conclusions for future strategies:

- the need for new approaches to replace the large-scale tree plantation efforts using imported species of the 1970s and a better balance between plantation and community-level, small-scale approaches using both better adapted imported species and local species[1] (55);
- the need for a closer association between forestry and agriculture, to be achieved in part by increasing farmers' perceived interest in forestry (18) and improving institu-

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[1] Small-scale community forestry projects, however, have proven to be more costly than originally assumed and management difficulties are not automatically solved by this approach. Very little research has been conducted about the ultimate potential of local varieties in reforestation.

Photo credit: U.S. Agency for International Development

Deforestation can have serious environmental consequences. CARE supported this shelterbelt project in the Maggia Valley of Niger to prevent soil erosion and maintain crop productivity.

tional links between forestry and agriculture departments and programs; and

- the need for a parallel focus on the development and extension of conservation technologies: for example, more efficient charcoal production, continued work on fuel-efficient wood burning stoves,[2] brush fire control, and the development of alternative energy sources.

The past decade has also taught a much greater appreciation of the importance and resiliency of natural plant and animal communities despite conditions of drought and increasing human pressure. Researchers are beginning to understand that these systems are important sources of food and medicines, particularly during times of drought when cultivated crops fail and domesticated livestock die. Knowledge of natural systems and their regenerative processes needs to be integrated into development strategies, and future programs need to include protection and development of those systems.

The lessons of the past decade point to four key environmental factors relevant to agricultural objectives in the Sahel:

1. the Sahelian climate,
2. its soils,
3. agricultural pests, and
4. diversity.

These lessons also indicate the need for increased attention to general problems of environmental degradation beyond agriculture.

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[2] Although wood stoves were much heralded when introduced in the Sahel in the late 1970s, adoption rates have been slow and the fuel efficiency of early models (claimed to consume up to 40 percent less wood than traditional methods) has been questioned. Improved models are now being developed.

The Sahelian Climate

Sparse and highly variable rainfall are the principle characteristics of the Sahelian climate. And though still poorly understood, geological and historical evidence suggest that annual weather patterns in the Sahel are subject to long- and short-term patterns making recurrent drought a permanent feature of the region (86). Scientists speculate that rainfall patterns of the past two decades could be part of an extended period of low rainfall. Unfortunately, early decisions on the selection of improved crop varieties and tree species for the Sahel were based on the assumption of a return to higher than average rainfall patterns of the 1950s and early 1960s. Therefore, unrealistic assumptions regarding rainfall were a major factor in the poor performance of many of the new varieties of sorghum and millet brought to the Sahel from elsewhere, in their lack of responsiveness to increased fertilizer usage, and in the failure of attempts to introduce new forage crops and exotic fuelwood species (20).

The implications for future strategies are clear. Drought must be accepted as a permanent and highly probable feature of Sahelian life and be included as a major factor in the determination of technical objectives. Given the certainty that even under the most favorable scenarios, at least 90 percent of Sahelian cereal production will continue to be produced under rainfed conditions, a better understanding of Sahelian climatology is essential (22). The 1975 creation of the Sahelian Regional Center for Agrometeorology and Applied Hydrology (AGRHYMET) as a specialized institution under CILSS was a positive step, but the development of AGRHYMET's capacity has been slow and its role is limited to data collection. A more systematic analysis of AGRHYMET data and data from the U.S. National Oceanic and Atmospheric Agency, which has been using remote sensing to improve early warning systems for famine, is needed to increase long-range forecasting capacity. Linking climate and agronomic information has the potential to reduce risks and decrease the variability of agricultural production under varying rainfall (112).

Sahelian Soils

The failure to appreciate adequately the low fertility and other characteristics of Sahelian soils was a further reason for the poor performance of many of the millet and sorghum varieties brought to the Sahel from India and elsewhere (77,98). In some instances, soil and rainfall characteristics have combined to lead to the poor performance of introduced varieties. Runoff rates are extremely high in many areas of the Sahel—up to 40 percent by some estimates (77)—due to the intensity of rainfall and poor absorptive capacity of soils. High runoff not only means inefficient use of what little rain does fall but also further degradation of soils through erosion. Compensating for poor soil quality must be an explicit factor in agricultural development strategies in the Sahel.

Continued research also will be needed to classify soil types as a basis for crop breeding and agronomic research programs, and to increase and apply knowledge regarding the composition and structure of Sahelian soils. The complex relationships between water, soils, and plant physiology under conditions of low rainfall still are understood inadequately. The development of low-cost strategies to increase soil fertility and improve other soil characteristics in low rainfall areas is challenging but critical. Most Sahelian soils are poor in phosphorus and nitrogen. The use of simple rock phosphates found in several regions of the Sahel has potential for relieving the former constraint while techniques relying on organic fertilizers or improved plant-associated nitrogen fixation may provide alternatives to costly chemical fertilizers (98). More research is needed on both alternatives.

Pest Problems

A wide variety of diseases and pests (e.g., insects, weeds, rodents, and birds)—many unique to the Sahel—have also hindered attempts to increase agricultural production. Though several large integrated pest management projects were launched (e.g., the CILSS Integrated Pest Management Project and AID's Regional Food

Crop Protection Project), their effectiveness was limited[3] and pest issues were not adequately addressed in many plant breeding and agronomic programs (89). Several of the new cereal varieties introduced were particularly susceptible to pest damage and changing agronomic practices, such as continuous cultivation, increased weeds. In some instances, pest problems have increased in drought years, further reducing the improvements that had been achieved in several better-yielding varieties.

Although the extent of preharvest and postharvest losses due to pests is debated, insufficient attention has been given to determining their extent or to developing alternatives (2). Again, however, the need is not only to learn more but to better integrate research results into programs. Due to their high cost, lack of availability, and safety considerations, the use of chemical pesticides is impractical for the immediate future except under limited circumstances. Pest resistance as an objective in breeding programs and improved agronomic practices (e.g., physical removal, cropping patterns) hold the most potential for reducing preharvest losses due to pests.

Diversity

The most crucial characteristic of Sahelian ecology that was underestimated in most agricultural development efforts is the number and diversity of Sahelian soils and microclimates. Rainfall variability over time and location is extreme, especially in low rainfall areas. Several kilometers can make the difference between modest yields and total failure. Fertility and other soil characteristics can also vary within short distances. Pest problems, too, are highly location-specific. Improved technical packages were often developed on the basis of assumed "average" rainfall and soil characteristics of a given area—a concept of little practical use when high variability means that the "average" rarely corresponds to the actual conditions faced by farmers and herders. In instances where successful technologies were based on local data, attempts to spread those technologies more broadly have achieved poor results (93).

More appropriate research and development programs require knowledge of the degree of diversity and the frequency or probability of any particular combination of environmental conditions occurring. What are the different soil types? What is the probability of a 20 percent greater or lesser rainfall on a given field? How likely are pest outbreaks? Given the various possibilities, which ones should determine research objectives? These are the type of questions that will need answers in the development of new Sahel strategies. The lesson of the past decade is that the failure to factor in diversity can be as disastrous to development strategies as the failure to accept the persistence of drought.

Poorly Appreciated Socioeconomic Systems

A lack of understanding concerning Sahelian social and economic systems was a further reason for the failure to develop technologies appropriate to the Sahel. Over the course of the past decade, the various actors in the Sahel have put different degrees of effort into anthropological, sociological, and economic analysis. The United States is considered to be one of the leaders in this regard. The studies have been of uneven quality and, as the knowledge base has expanded through experience, the problem seems to be one of ineffective integration of socioeconomic analysis into the processes of technology development and exchange. The lessons of the past decade underscore several key characteristics that are essential to future efforts.

The Influences of Poverty

Poverty is the fundamental reality facing the vast majority of Sahelian farmers. Poor farmers whose very survival depends on producing sufficient quantities of food are understandably reluctant to adopt technologies that increase the risk of failure. By conducting a combination of agricultural and nonagricultural activities (including migration of individual family members), farm households spread rather than concentrate risk. Farmers and herders in the Sahel are also particularly cash poor and tend to minimize inputs, especially cash investments. In one example, a 40-percent increase in returns was necessary before farmers would risk adopting new technologies (57).

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[3] Both projects served to increase attention to pest management issues and improved Sahelian institutional capacities to address them; nonetheless, both suffered management problems that limited their effectiveness.

These high risk-avoidance and the low-input preferences in farmer decisionmaking were not adequately appreciated nor integrated into the search for appropriate technologies for the Sahel. These factors were certainly significant in the poor adoption rates of the technologies that were introduced. In fact, many of the agricultural, livestock, and forestry technologies introduced in the Sahel actually have increased risk (55). There are numerous examples of new seeds, practices, and animal breeds that, while higher yielding, were more susceptible to drought, pests, and diseases than traditional approaches. **The implications of these lessons are that in the future, technologies must be lower risk, lower input, and provide higher returns if the majority of the Sahel's low-resource farmers and herders are to benefit** (43). Particular attention to not increasing risk is, moreover, not only necessary for better adoption rates, but the only defensible position when dealing with the poorest Sahelian farmers.

Labor Supply Factors

Contrary to original assumptions, labor supply has proven to be a major constraint in Sahelian agricultural production systems and in the willingness to adopt new technologies. The seasonal nature of Sahelian agriculture and the lack of alternatives to human labor create labor bottlenecks at periods of peak labor need: planting, weeding, and harvesting. Despite high population growth, these bottlenecks have in many cases increased because of several factors: rural-urban migration, increased school attendance, breakdown of the traditional family production unit, and continuing high levels of debilitating disease. Second, labor availability is influenced by competition for labor from alternative activities. Risk avoidance strategies spread labor among activities rather than concentrating it on increasingly risky agricultural activities. The proportion of nonagricultural income in most rural households is high. Also, drought and desertification have increased the time spent in such essential activities as wood and water collection, usually by women, and has meant less time available for agriculture.

Thus, the limited labor supply has affected the outcomes of development activities. A study to determine why oxen cultivation was not adopted in most of the Sahel showed that the prohibitive cost was the extra labor required to maintain the animals (39). One reason why most irrigation schemes failed to successfully encourage farmers to grow two successive crops of rice was competition for labor from rainfed agriculture or, during the dry season, perceived better alternative income opportunities (e.g., migration to cities, vegetable production) (76). **The lesson learned is that future strategies must either be based on new technologies that do not greatly increase labor demands or on those that provide sufficient returns and can effectively compete for labor.** There is a special need to develop technologies to increase the productivity of labor input (e.g., improved mechanization) and to develop broader approaches to labor supply, including labor-saving technologies in other areas such as food processing, water and fuelwood collection, and fuel-efficient cooking technologies. Complementary programs such as health and nutrition improvement could also help increase the effectiveness of available labor.

The Role of Women

The past decade has also provided important lessons regarding the importance of recognizing gender factors in most food production systems in the Sahel. In the Sahel as elsewhere, poor project performance has often been tied to the lack of careful gender analysis and the failure to integrate the implications of that analysis into the development of production strategies (13,23). Agricultural extension, credit, and other inputs usually have been directed toward

Photo credit: World Bank

Photo credit: U.S. Agency for International Development

Most grain is ground by hand throughout the Sahel. Therefore women, such as these from Burkina Faso, spend hours preparing food. Mechanical grinders can cut labor needs and free women's time for other activities.

men (5). Yet women provide a major portion of total labor input for cereal production and also have responsibilities for food processing and storage and household maintenance. In cereal grain improvement projects, women's labor constraints are thus particularly critical (104).

Studies of development efforts in Africa have demonstrated unexpected results caused by the lack of gender focus (7,24,41,42,44,114). Increased opportunities for cash income, even in activities traditionally reserved for women (e.g., rice in The Gambia and Senegal or vegetable production in Mali) have been usurped by men. In livestock development projects, the emphasis on cattle (controlled by men) over goats and sheep (controlled by women) and within cattle programs on beef as opposed to milk production have benefited men disproportionately and often decreased women's income. **The lessons of the decade call for an expanding knowledge about gender roles and also for better methodologies to apply that knowledge.**

Economic Realities

Development efforts in the Sahel often were based on faulty assumptions about the economic realities facing the Sahelian households. With few exceptions, Sahelian agricultural production involves low-input, low-productivity systems and they provide low returns. Most experts feel that opportunities for further expansion of such "extensive" production systems are becoming limited and that expansion of current systems has resulted in lower yields and negative environmental effects in some areas. Therefore, many authorities feel that efforts to increase output substantially must rely on changes in production that use a wide variety of inputs more efficiently.

Such strategies face considerable obstacles. Low-input, risk-avoidance strategies and the relatively high cost and marginal production increases of the technologies offered over the past decade have been factors in their poor adoption. Returns to farmers and herders from "improved" technologies often were not worth the investment (93). But the focus on production and inputs has missed the even more significant constraint of low market demand and low prices. This has been particularly the case for grains such as millet and sorghum where, with the exception of drought years when the farmer has little to sell anyway, demand is limited (84).

The "food gap" at the national level has not translated into higher demand or prices for the cereal crops produced by most Sahelian farmers. Rather, demand has grown for imported rice and wheat, which is competitively priced, more easily prepared and, to many urban dwellers, better tasting. The economic rationality of increasing millet and sorghum production under these conditions is questionable. The more successful adoption of new technologies in cotton, and to a lesser degree in peanuts, has been related to their higher economic return. For the latter, falling world prices, the end of input subsidies, and fixed low prices have resulted in significant reductions in areas planted. The current precipitous drop in cotton prices could well have a similar effect. **Efforts to increase production must therefore be geared also toward increasing income by increasing productivity (particularly labor productivity), by lowering input costs, and by expanding market demand.**

Diversity

The lack of appreciation for the great diversity in production systems in the Sahel, each a response to a specific set of ecological and socioeconomic factors, was a key design weakness of many livestock and crop development activities (24,67,93). Substantial differences exist between households, ethnic groups, and castes in crucial areas such as access to land, labor and capital and services, gender and age group roles, cultural designations of "acceptable" occupations, traditions of communal economic activity, the importance of agriculture as opposed to other income sources, and rights to surpluses produced. Project designs based on simple models of average farm households failed to recognize or integrate the diversity of socioeconomic and cultural contexts represented in any given community—differences that often determined responses to proposed technologies. **The implication for the future is that there is a need for far more localized—or targeted—approaches and technologies.**

Guidelines for Sahelian Agricultural Technologies

Scientists and planners working in the Sahel speak of the need to reorient the search for agricultural technologies to respond to the lessons learned in the past decade. Most agree that environmental and socioeconomic factors have constrained the efforts of the past. An analysis of these factors gives rise to several broad characteristics that should guide the search for tomorrow's technologies in the Sahel. Though not a revolutionary reversal, these characteristics represent important changes that many agricultural researchers in the Sahel are already adopting (77). These technology characteristics can be grouped into four categories: stability, affordability, improved returns, and long-term environmental sustainability.

Stability

It is the variability of rainfall rather than its generally low levels that provides the greatest challenge to agricultural research in the Sahel. For example, new technologies must be able to perform not only during periods of low rainfall but also when the rains are relatively high. Considering the prevalence of rural poverty and vulnerability, improved technologies for farm-level food security must begin by striving to provide production stability. Several approaches could be used to help increase production stability:

- Use crop breeding programs to develop more quickly maturing varieties that are also resistant to moisture damage in later stages.
- Improve water management, emphasizing techniques for reducing and concentrating run-off and increasing infiltration such as tied ridges, contour ridges, microcatchments, and improved plows.
- Develop a better understanding of Sahel-specific agro-climatology, linking prediction capabilities with agronomy.
- Improve pest control and storage methods.
- Develop appropriate irrigation techniques. Small-scale irrigation traditionally has played an important role in the stability of Sahelian agriculture and efforts are needed to support innovators and study the most effective methods to realize the potential of the Sahel's surface and subsurface water resources.
- Use the Sahel's diversity as an advantage, building on traditional strategies to obtain stability by combining a range of different crops or even noncrop activities. Examples include mixed cropping; intercropping of different varieties of the same crop; introduction of new crops; mixed crop/livestock/tree systems; nonagricultural income-generating projects; inland fisheries development; and technologies for improving the output of natural systems—wildlife ranching, artificial seeding of natural species, and improved harvesting and processing techniques.

Affordability

With few exceptions, Sahelian farmers are low-resource farmers. New technologies generally must respond to their low-input strategies. Inputs such as fertilizer, animal power, other forms of mechanization, improved seed, pesticides, or improved animal health and nutrition measures will only be adopted if their cost is low relative to their probable return. Because probable returns for cereals and most other crops are low, technology development must seek inputs that are correspondingly inexpensive. This pertains not only to inputs purchased with cash but also to labor and to land where it is scarce.

Improved Returns

New technologies must be low risk, affordable, and they must also provide adequate increases in returns. Since it is likely that the value of existing agricultural products will not increase greatly, either new, higher valued commodities will have to be introduced or the technologies used to produce existing commodities will have to be improved to make current practices more profitable. Attempts to find new commodities for the Sahel have been largely unsuccessful. Experimental sunflower production in The Gambia, export production of vegetables and fruits in Senegal and Mali, and increases in cashew and sesame production in several countries provide at best modest prospects. Strategies to increase demand for or enhance the competitiveness of Sahel-produced cereal grains (e.g., improved processing and storage technologies for millet and sorghum, decreased subsidies for imported grains, or more active trade protection measures and subsidies) are also possible.

Technologies need to be developed that provide food stability under low input levels while also responding well to increased inputs and better management. For the particularly challenging case of low-value cereal crops, substantially higher yields are possible if they are grown in rotation with export crops such as cotton. Higher input systems often are associated with improved management and the residual effects of fertilizer used on previous cash crops is significant. For example, average yields of millet and sorghum cultivated in rotation with intensified cotton production in Mali are as much as 40 percent higher than those in the surrounding area (20).

Long-Term Environmental Sustainability

Continued environmental degradation and stagnating or even falling yields have led Sahel experts to view long-term sustainability as a critical criterion for new agricultural technologies. Although the evidence is controversial, many people feel that the impact of development activities inadvertently may have decreased long-term sustainability. For example, development activities may contribute to the loss of soil fertility through continuous cultivation and the expansion of agriculture onto marginal lands; increased pest problems from monocropping; overgrazing and soil compaction from livestock concentration around deep wells; salinization and waterlogging in irrigation projects; and increased aluminum toxicity and acidity levels where commercial fertilizers have been used continuously. Technology development must include long-term environmental sustainability as a key research objective.

The Integration of Traditional Technologies

The poor performance of introduced technologies has given development experts a new appreciation for the environmental and socioeconomic appropriateness of traditional Sahelian technologies. Centuries of experience have led to successful techniques such as mixed cropping patterns; herder migration patterns and water management techniques; seed selection; the use of ash as fertilizer; food storage and processing technologies; the food and medicinal value of indigenous fruits, berries, leaves and barks; the use of natural systems as food reserves during drought; and other adaptations to the environment. While most traditional production systems are well adapted to the Sahelian environment, farming and herding systems are falling behind population growth and environmental change.

It is essential to integrate traditional and new technologies in agricultural research. This integration can suggest low-input innovations to help traditional production systems keep up with changing environmental and socioeconomic conditions. The traditional approaches can act as starting points to develop appropriate new technologies.

Photo credit: George Scharffenberger

Wild plants supplement other foods during shortages. One former Peace Corps Director in the Sahel reports that the fruits being gathered here are boiled for hours, then "taste like bologna."

More than any individual technology, the dynamic adaptive processes by which African farmers and herders collect information, experiment, and continually adjust their own technologies is considered to be a helpful starting point for research and development efforts (103). Charles Weiss, former World Bank Science and Technology Advisor, summarized the future direction needed for technology development and selection for Africa agriculture:

> For Africa's smallholders, the major technological task is the development of improved

technologies which are adapted from and more productive than traditional technologies and which are sustainable socially, ecologically, institutionally, and economically. This means that they must be suited to ecological conditions of Africa, should not disrupt traditional patterns of work, must not require heavy front-end investments or recurrent costs, and must not place too much of a burden on the limited managerial abilities of government officials or African small farmers (143).

Chapter 5

A Decade of Lessons: Policies and Choices

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IN BRIEF . . .

Overall, efforts to develop technologies for the Sahel have been disappointing. This is in large part because the environment and socioeconomic systems of the region are inadequately understood. Guidelines for future technology development, however, can be drawn from these disappointments. For the future, technology development must include a focus on solutions appropriate to the Sahel; increased farmer and herder input; a creative combination of indigenous and external research, technology, and management systems; more localized research strategies tailored to ecological and socioeconomic diversity in the Sahel; and special attention to the low-resource farmers and herders who comprise the majority of Sahelian agriculturalists. In general it must be realized that technology development, adaptation, and transfer will be slower and more complex than had been assumed. AID and other participants in the Club/CILSS framework are beginning to incorporate these lessons into their planning and activities.

Technology development, however, is only one part of development assistance. The past decade has also taught many lessons related to the importance of how assistance is designed and implemented, and how the policies of donors and recipients affect the outcome of development efforts. Chapter 5 examines characteristics that have contributed to the poor results of the past and opportunities for future efforts. Highlights of the chapter include:

- Four general institutional problems contributed to the poor results in the Sahel: the lack of effective participation by the intended recipients of the assistance; the inadequacy of a short-term, product-oriented approach; the complexity of project design; and the inappropriateness of much of the research conducted.
- Misguided Sahelian and donor policies are a further factor in the poor performance in the Sahel. Cereal pricing policies, artificial exchange rates, poor debt management, low investment in food crops, indiscriminate food aid, and a range of measures discouraging initiative have proven to be disincentives to increased food production and effective distribution. If agricultural strategies are to be effective, the broad economic policy environment in both Sahelian and donor countries must be consistent with development goals.
- Beyond technologies, modes of assistance, and policies, the multinational effort in the Sahel has suffered from a lack of clarity and agreement on the definition of food security goals and the optimal means to obtain them. Many fundamental issues, such as the balance between investment in rainfed or irrigated agriculture, have yet to be resolved.

MODES OF DEVELOPMENT AND DEVELOPMENT ASSISTANCE

> Our policy is that the point of aid is to eliminate aid.
> —Thomas Sankara, President of Burkina Faso (90)

The experiences of the past 10 years have taught the importance of how technologies are combined and then applied in programs and projects. The methods used in designing and implementing development activities are as diverse as the participants involved. Within that diversity, however, several characteristics of the institutional actors have contributed to the poor results of the past decade. Four problems stand out: the lack of effective participation by those to whom projects were directed; the short-term, product-oriented project approach of most efforts; the complexity of project design; and inappropriate research.

Photo credit: George Scharffenberger

Local farmers and herders are experts whose knowledge often has not been tapped, and development assistance has been less effective as a result.

Participation: Leaving Out the Ones That Count

As happened elsewhere in Africa, development strategies in the Sahel were built on the assumption that technologies to increase small-scale farmer and herder productivity would come from outside those production systems. African governments and international donors alike saw traditional farmers and herders as inherently conservative, even backwards. They viewed traditional cultures as obstacles and their technologies as inefficient (67,103). But planners failed to appreciate the advantages of traditional systems and the systems introduced from Western conditions have caused problems (58). In retrospect, many experts view the lack of effective farmer/herder participation in all phases of project design as a significant factor in poor project results.

The lack of recipient input explains the inappropriateness of many technical approaches promoted in Africa (10,103). Who but farmers themselves could best have explained the rationality of their decisionmaking, their cultural value systems, village and farm level economies, and the diversity of patterns of social organization? Even where such input was sought, perceptual biases shared by most "experts," foreign and African, often hid or distorted the realities of the poor (19). The traditional knowledge of farmers and herders regarding such things as natural forest systems, effective plant associations, and pasture characteristics was a valuable resource that was left largely untapped.

But development observers believe that the lack of effective participation has had a more fundamental negative impact beyond the lost opportunity for more accurate information. Experience in the Sahel and elsewhere points to the conclusion that the extent to which farmers and herders are involved in technology selection and development and the conceptualization, design, implementation, monitoring, and evaluation of projects greatly influences the likelihood of success (67,116). The failure to include Sahelians was a failure to build on their motivation, energy, creativity, demonstrated entrepreneurial skills, and proven resilience.

The disappointing results of the past can only be reversed if farmers and herders are given a more central and responsible role in project decisionmaking. The top-down, implicitly paternalistic underpinnings of many development efforts in the Sahel need to be replaced with less hierarchical, more service-oriented structures and partnerships. According to an official of Burkina Faso's agricultural research institution: the farmers themselves should define the problems and suggest solutions. There is too much condescension. What is needed is to build a partnership between donors, national institutions, and farmers.

Creative methods need to be developed to improve the two-way flow of information between farmers and herders and development agencies (both Sahelian and donor) as well as means to implement what have been up until now largely rhetorical calls for increased farmer participation and responsibility. The community development approach of the 1960s and 1970s was both ineffective and ineffectively applied. Redefinitions of the role of the extension agent, increased farmer input in determining research objectives, and alternative participatory research methods integrating farmers as participants are all required (57).

Beyond information flows, the question of increasing farmer and herder responsibility in development projects is even more crucial and unquestionably more difficult. Logic and experience demonstrate that only when farmers and herders see their own interest in and feel "ownership" of projects can they be successful. This is especially the case in the realm of environmental protection where the divergence between perceived private interest on the part of farmers and herders and public good in the eyes of government or donor officials is great. Because rigid enforcement of conservation rules is impractical on economic grounds, the only means to reconcile the two is to change perceptions and support appropriate solutions through participatory approaches.

Achieving effective participation is highly problematic. Divergence between rural interests and those of urban classes; economic and social differentiation between rural households and within households; and conflicting interests between farmers and herders, different ethnic groups and different clans all complicate the task of organizing participatory development models. And while many see the potential in better organized farmer and herder groups as effective partners for development (58), the political implications of better organized, more vocal farmer groups raise questions about whether the governments of most Sahelian States would be likely to accept such a change. Despite these challenges, a shift in responsibility is essential. As a Club/CILSS strategy paper observed:

> Producers should cease being dependent, assisted persons and take their future fully into their own hands; by contrast, the development organizations should progressively limit their role to provide groupings with the assistance and services they require, while granting them more decisionmaking power (28).

Short-Term, Product-Oriented Project Approaches

Most donor-assisted efforts in the Sahel (other than those of the French) have been organized into discrete, short-term (2- to 5-year) projects.[1] Objectives are commonly set (and reinforced through monitoring and evaluation) in terms of quantifiable results—in theory to indicate progress toward less tangible goals. A number of factors have converged to favor this type of programming including various institutional and political pressures (Sahelian and donor) for rapid, quantifiable results; the original emphasis on technology transfer for which this mode of assistance seemed appropriate; donors' desire to control use of their resources; and a desire for flexibility in the event that progress was unsatisfactory.

The nature of the development challenge in the Sahel is such that the goals and many objectives of the Sahel effort can only be achieved on the basis of a sustained, cumulative, long-term effort. Contrary to early assumptions, the Sahel effort has required more extensive adaptation and development of new technologies than originally assumed. It takes an average of

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[1] Club du Sahel estimates put the percentage of total aid to the Sahel in nonproject assistance (e.g., technical assistance, research, scholarships, food aid, balance of payments, and budget support) at 34.1 percent from 1975 to 1983 (25).

10 years of continuous work to produce a new crop variety and another 5 to 10 years to gain its widespread adoption—a process poorly served by short-term project aid (45). While in practice many research and extension projects have been renewed or followed by similar efforts, there have often been significant delays and continuity has suffered. Other major effects of the short-term project approach include:

- *Insufficient Data Collection/Analysis*: Developing an understanding of year-to-year variations in rainfall and the seasonal nature of production systems requires extended periods of observation. Time constraints mean that insufficient field data are collected prior to final design.
- *Lack of Systems Approach*: Short timeframes and required quantifiable outputs encourage simplified models of farming systems that focus on the individual sectors rather than the relationships between them. In the field, this limits flexibility.
- *Lack of Focus on Institutional Development*: Short-term projects and evaluation based on quantifiable indicators encourage foreign technical assistance to take control and favor physical outputs over capacity-building goals. Rather than working through existing institutions, the tendency has been to add new organizational structures that are rarely sustainable following project completion.
- *Inefficient Use of Training*: Training components of many short-term projects have had key African technicians or managers leave as expatriate project personnel arrive, then return to take over later with little hands-on experience or support.
- *Bias Against Sustainable Technologies*: Short-term objectives and evaluation criteria bias technology choices toward quick production without consideration for long-term environmental or institutional sustainability.
- *Increased Coordination Difficulties*: The discrete project approach amplifies coordination difficulties and has tied up key Sahelian management and technical staff in responding to multiple and often overlapping or inconsistent donor administrative and program demands (85,134).

The past decade has confirmed that it will not be easy to achieve Club/CILSS goals. "Technology transfer" has become technology development, much of it dependent on first building the basic knowledge base. Participatory approaches to development take time to organize and implement. The poverty of the majority of farmers and herders and their attitudes toward risk and innovation indicate the need for slow, gradual intensification of production systems. Efforts such as river basin development, because of cost and complexity, are inherently long-term. Sahel specialists agree that these long-term needs require programs and projects with a corresponding perspective. They feel that current project length and the various biases toward short-term, product-related results need to be changed to longer, more flexible programs with objectives related to broader, long-range impact and systems-based strategies. The long timeframe has implications for project financing as well. For example, longer payback periods will require increased grant or concessional elements of financing.

A related error in many Sahel project designs was to overestimate the capacity of Sahelian institutions. Shortages of managerial and technical skills, planning experience, financial control systems, and the ability to absorb recurrent costs translated into the inability of Sahelian institutions to either fulfill their roles within development activities or to sustain those efforts after a project's end. In many instances, Sahelian roles in donor-sponsored projects involved the delivery of crucial component technologies and inputs such as extension advice, credit, mechanization services, fuel and maintenance for irrigation pumps, veterinary services, seeds, fertilizer, and crop protection services. The lack of effective delivery systems was among the principle reasons for poor performance of agriculture-related development activities. In many instances, assistance actually made weak institutions even less effective. The massive influx of aid and the demands of multiple projects often overwhelmed the capacity of already weak administrative and technical services (4,127,134).

After reflecting on the lessons of the past, many experts consider the commitment to long-term development in the Sahel as a commitment to institution-building, i.e., to increasing the capacity of Sahelian institutions (formal, nonformal, governmental, nongovernmental, regional, national, and community) to take on the tasks of agricultural and rural development. Indeed, some consider the lack of more improvement in institutional capacity as the greatest failure of efforts in the Sahel (57). But institutional development is complex and poorly understood, particularly in the context of informal institutions at the village level. Institutional development requires learning through experience, and this requires both opportunity and time. It is poorly served by rigid or standardized formulas, short-term projects, disjointed project-specific training courses, or technical assistants who take over while Sahelians watch from behind.

Several Sahel development authorities point to the long-term institutional relationships between American universities and research institutions in India as being major factors in developing the capacities of Indian institutions to play the key role they did in the Green Revolution in that country. Though similar efforts were tried in Nigeria in the 1960s and are currently being introduced in Cameroon, they have not been a part of the Sahel effort. The language barrier places a major practical constraint on non-francophone donors such as the United States.

AID's support for the Central Veterinary Laboratory (CVL) in Mali is, however, an example of success in institution-building. Although AID support is continuing, the CVL's vaccine production service is now largely self-sustaining. It has taken over 12 years of ongoing support but is an example of the slow but sustainable progress that is possible with such a commitment. The lesson for the future is that institution-building—the long slow process of building capacity—must be a significant element of all development strategies if Club/CILSS goals are to be realized.

Photo credit: U.S. Agency for International Development

AID's support for the Central Veterinary Laboratory in Mali has been long-term and it is now paying off because the laboratory is self-sustaining in vaccine production.

Complexity of Project Design

The problems of the short-term, discrete project approach are amplified when project designs are overly complex. First generation Sahel agricultural programs attempted to develop and disseminate combinations of interdependent technologies delivered to the farmer as "packages." But the package approach proved to be disappointing in the Sahel for several reasons: often some elements of the package were less well researched or even unavailable, the total level of resource investment (usually capital and labor) was only appropriate for the wealthier farmers, and the standardization of packages was poorly suited to the diversity of ecological and socioeconomic contexts (93,126). Projects tended to be "overdesigned" in the guise of rigor. Assumptions, goals, and objectives were overly optimistic. Many designs were overly detailed and inflexible, which required unjustified levels of intervention in local systems and gave little allowance for farmer initiative or change. Consequently, the proportion spent on technical assistance in total project costs has been excessively high. Often the result was expensive, top heavy, and difficult to administer projects predestined not to meet objectives. An AID livestock project is typical: $13 million of $17.5 million is devoted to foreign technical assistance.

The problems associated with the complexity of project design were multiplied in the so-called integrated rural development (IRD) projects that became popular in the mid-1970s. Promoted by the World Bank, IRDs attempted to address a broad spectrum of farmer needs more or less simultaneously: food and cash crop production, animal husbandry, forestry, health, education, water supply, community development, and others. Theoretically, it was an advance to recognize the diversity of concerns facing farmers, but the integration of the various components was never achieved. Inadequate analysis of socioeconomic data; narrow disciplinary perspectives of scientists working on the projects; and the fact that the responsibility for different components fell on different, often competing government agencies, combined to turn most IRDs into administrative nightmares. They became rural development smorgasbords, as an uncoordinated succession of extension agents, community development workers, and technicians vied for farmers' attention and scarce resources. Other donors, too, lacked clear and specific strategies and became overextended into multiple program, sector, and geographic areas (128).

The Sahel Development Planning Team summarized the results of development assistance projects in the Sahel this way:

> . . . projects tended to result in an enlarged government superstructure; to require more skilled management staff than most countries had to offer; to foster myopic views of "progress" at the top (so many plows, so many bags of fertilizer delivered) and confusion at the farmer level (were debts to be repaid or not?); and to generally box agricultural development into a series of discrete efforts with artificial, often overly optimistic, timeframes, inhibiting rather than promoting increasingly productive use of farmers' resources (126).

The challenge identified by past experience is thus to move to new modes of assistance more consistent with the nature of the Sahel and the long-range goals of food security, environmental stabilization, and economic growth. Alternatives that focus on broader goals and objectives for different economic sectors, in which several donors participate, are one option. An example is the current cooperation on policy reform. Other forms of longer term program assistance (e.g., budget support, food aid, long-term technical assistance, etc.) are also options to explore. Projects will continue to have an important role, but they should be based on effective Sahelian participation at all stages. They should be longer term, more flexible, and focused on increasing capacity and sustainability as well as production. In addition, they should make realistic demands of the managerial and resource capabilities of both Sahelians and donors.

Making Research More Appropriate

Given the importance of research in the Sahel effort, it is important to determine how it should be organized to be more effective and how it can best integrate the lessons of the past decade. Many of those lessons have already changed some research goals to bring them more into line with Sahelian ecological, social, and economic realities. But other questions remain. How much research is justified? What are the research priorities? How do current research methods need to be modified? How should research be organized among the numerous institutions involved?

How Much Research Is Justified and What Are the Priorities?

In general, the objective of research and development is to accelerate the rate at which scientific knowledge is transformed into site-specific technology thereby improving the tested menu of alternative technologies available to farm families (49).

Photo credit: World Bank

What kinds of agricultural research are most promising? Many authorities now seek to improve reliable local practices, such as these sorghum silos in Burkina Faso.

A major conclusion drawn from examining the experiences of the past decade is that the scientific knowledge base about the Sahel, its ecology, and its natural and human systems is inadequate. But financial resources for all development activities are likely to be limited for the foreseeable future, so it is crucial to decide how much fundamental research is needed and how much research should be devoted to applying the research results already available. Some experts believe that substantial technological breakthroughs are not possible for Sahelian agriculture and that resources would be better invested in the application of the few improved technologies that already exist. But many agree that the existing research findings, particularly in the social sciences, have not been adequately integrated into development programming and design. Most feel that a greater emphasis on research—both basic and applied—is essential.

Before research priorities can be set, overall development strategies have to be more clearly determined. Critical research areas include: improved low-resource varieties and agronomic practices for millet and sorghum, water and soil management, agroforestry, food processing, animal nutrition, inland and coastal fisheries, and small-scale irrigation systems. The failures of the past indicate the need for more extensive social science research generally but particularly in participatory methods, farming systems, population dynamics, marketing, and extension techniques. And importantly, there is great need for a better integration of the social and physical sciences.

How Should Methods Be Modified?

The absence of effective farmer and herder participation in agricultural research is both a cause of failure and a missed opportunity. But moving beyond that general agreement to concrete methods for increasing farmers' roles in research is much more controversial. Defining research objectives, refining hypotheses on which research is based, suggesting possible solutions, and testing and adapting results are all areas for increased farmer and herder input. Many experts feel that the focus of research must shift from the research station to the farm—a view for conducting research that is called the farming systems research (FSR) perspective. In addition to farmer participation, FSR has the benefit of including the "whole range of bio-technical and socioeconomic research and analyses which place at the center of the analysis, factors affecting the welfare of the farm family" (49). But FSR and participation are not necessarily synonymous. French researchers have used on-farm methods for decades in the Sahel but their success has been as limited as more traditional research approaches. Critics claim that such methods are not necessarily examples of participation, but can be examples of using farmers as research tools (19).

In the American version of FSR, farmers in theory have more flexibility and control but the actual implementation has been inconsistent. The interdisciplinary basis of FSR has also proven difficult to achieve in practice by scientists often unable to escape their individual disciplinary perspectives. FSR is slow and labor-intensive and therefore costly. When used as one component of a short-term project which seeks quantifiable results, the temptation too often has been to take control from the farmer. While more adapted to the diversity of Sahelian environmental and socioeconomic systems, findings tend to be location-specific. Though intellectually appealing, some question whether such a level of disaggregation in research is justified on economic grounds. In theory, FSR is designed to bridge the gap between research and the farmer—as a support to the role that under traditional agricultural development models is assigned to extension agents. The weakness of extension services in the Sahel and the tendency of many externally financed and managed FSR programs to be poorly integrated with national research efforts have resulted in FSR often falling between research and extension rather than bringing the two together.

Farmers in theory have input into the definition of research goals through the extension service. Extension services should be the link between farmers and research. But extension services in the Sahel have been ineffective in this regard because of limited training, support, and supervision. Where extension has been used and supported, as in several of the cotton projects, success in bringing farmers and researchers together has been much greater (84). The much more challenging task of tapping into and supporting farmers' own research, seen by many as an important facet of research, has yet to be adequately attempted in the Sahel.

How Should Research Tasks Be Divided Among the Many Research Organizations Active in the Sahel?

A multitude of actors are involved in research and agricultural training in the Sahel, and coordination is a problem (40). At least four International Agricultural Research Centers of the international agriculture research system are working in the Sahel (IITA, ICRISAT, ILCA and WARDA).[2] Regional projects sponsored under various auspices (e.g., Organization of African Unity, CILSS) in topics such as integrated pest management, climatology, and food grain research and development are also underway, along with research efforts by individual Sahelian States. The French operate a branch of their own research network in the Sahel. Research in many donor-sponsored projects is conducted fairly autonomously from Sahelians. Important questions arise: Is the division of responsibilities between different levels of research and extension clear and is it optimal? How best can these efforts be coordinated?

A wise way to identify priority research needs is to work directly with farmers and herders. In most cases, this occurs through extension agents. Priorities are passed on to national researchers who, if they do not have the facilities to respond, in turn pass them on the international centers. The international centers perform primary research, the results of which go back to national researchers for field testing and further adaptive research before being brought out by the extension agent to the farmer.

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[2] IITA is the International Institute for Tropical Agriculture. ICRISAT is the International Crops Research Institute for the Semi Arid Tropics. ILCA is the International Livestock Centre for Africa. WARDA is the West African Rice Development Association.

There is general agreement that, apart from the extension services, the national level research institutions are the weakest link in the chain. Some experts feel that greater in-country efforts by the international centers and regional groups are required at the country level to overcome this weakness. Others argue that resources should be devoted to building the capacities of the national institutions themselves because national researchers must be involved in or have the capabilities to perform basic research in order to be effective in adaptive research.

Sahelian and French scientists are generally more critical than U.S. scientists of the International Agricultural Research Center model and argue that investment in the international centers has siphoned resources from national institutions. They propose networking between national programs as an alternative means of building the "critical mass" of research efforts needed to achieve significant results. But the costs of building research capacity at the national level is high and many countries lack adequate management ability. Thus AID has based its strategy to support African agricultural research on building capacity in a limited number of institutions, each serving an ecological region. For the Sahel, AID has selected Senegal as the country whose research institutions would receive aid, assuming that its results will be adapted for other Sahelian States (122). Each of these approaches has validity.

The critical research needs for the Sahel and the resource constraints that research faces call for coordination among the various parties as they work to create models for research. The reality of each Sahelian State desiring its own research capacity, the long-term desirability of building local capacity, and the diversity of ecological conditions among and within countries are factors that argue against the practicality and effectiveness of focusing efforts in just one country or bypassing national institutions in favor of efforts by international research centers or independent research by donors.

POLICY DISINCENTIVES AND THE POTENTIAL FOR REFORM

More appropriate technologies and better development methods are essential if future efforts in the Sahel are to be more effective than those in the past. But these alone will not be sufficient. According to the 1983 AID assessment of its Sahel program:

> Overshadowing all good intentions were (and are) central government policies and philosophies which inhibit individual initiative, are disincentives to production, misallocate resources, improperly train, subsidize, urbanize, discourage trade, overregulate and misdirect development. . . . The effect was and is an environment which compromises and makes more difficult and expensive successful completion of critical primary sector development projects (128).

Most of the policies that reduced the effects of agricultural development efforts were manifestations of the centralized orientation of the newly independent Sahelian States and the implicit urban bias of their government policies. They were built on highly centralized administrative and economic structures that were inherited at independence and were supported not only by the more politically vocal segments of society but, at least in the 1960s and 1970s, by much of the donor technical assistance the Sahel nations received.

Agriculture's Low Priority

Following the then-popular theories of economic development, agriculture in the Sahel was viewed by the new governments (and their foreign advisors) as a source of support for industrialization and growth. Government monopolies controlled the purchase of export crops from farmers at prices often considerably below the world market price. The price difference was used to provide the State with financial surpluses in hard currency. The so-called "stabilization" funds thus generated were *de facto* taxes on the agricultural sector used to finance government operations in industrialization and infrastructure development, or to subsidize prices for imported cereals consumed by the urban population. The proportion of government operating and investment budgets going into agriculture has been consistently below agriculture's 34.6 percent average share in gross national product (22). And within agriculture, a much higher proportion of support has gone into research, extension, inputs, and marketing for export and import substitution crops than to food crops.

African leaders have realized this inadequate public investment in agriculture as a major policy failure and have set a target of 20 to 25 percent of total public investment by 1989 (91,92). Among donors, agriculture's priority has also been low despite strategy statements to the contrary. Between 1975 and 1983, direct donor assistance to rainfed agriculture in the Sahel represented only 9.3 percent of the total (only half of which was for food crops) with an additional 7.6 percent going to irrigated agriculture and 6.9 percent to river basin development. Yet 22 percent of donor support went to food aid and balance of payments support. The value of the food aid provided was more than double the support for rainfed food crop production (25) (see table A-5 in app. A).

The use of government or parastatal agencies to provide inputs to Sahelian agriculture (e.g., credit, fertilizers, extension advice, and irrigation) has been another area where the real needs of the poor farmers and herders are given second priority to other interests. Parastatals' inefficient management and swollen personnel rosters have provided farmers and herders with ineffective support. Parastatals absorb large portions of the government and donor funds invested in agriculture. Farmers are charged for the services of these agencies through lowered commodity prices and direct fees, further reducing their returns and thus their incentive to adopt new methods or to increase production. For example, in one irrigation project in Mali, the ratio of government workers to farm families has at times approached one to one. Farmers sometimes pay up to 20 percent of their rice harvest (e.g., 400 kg of rice per hectare with average yields of 2,000 kg per hectare) for services that some experts describe as "nothing." The remaining rice is sold to the parastatal agency responsible for the project at a fixed price below the market level.

Cereals Policies

In the often volatile post-independence political climate, the major threat to regimes in power came from the urban population. Thus, the new governments concentrated services such as schools and health care facilities in urban areas. Low income and high unemployment in urban areas also encouraged governments to keep costs of living low to maintain political stability. This has translated into cheap food policies for the cities. Though some attempts were made to use local cereal production for this purpose,[3] throughout the 1960s and 1970s urban food supply was increasingly assured through subsidized imports, artificially high exchange rates, preferred customs treatment, and controlled prices. The low relative price of imports and changing preferences for wheat and rice have shrunk the demand for locally produced cereals.

The importance of improved cereal policies is clear, but the specifics of what those policies should be are less clear. Several nations of the Sahel (e.g., Senegal, Mali, Niger, and The Gambia) are taking steps to remove subsidies for imported cereals and flour, and to increase or do away with fixed prices for locally produced grains. In Burkina Faso and Mali, cereal marketing boards are being reorganized. Whether these measures will ultimately increase demand for local grains is uncertain. High production levels during the 1985 to 1986 season have created low prices in Sahelian grain markets, and

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[3] In Mali, forced cereal deliveries were tried while elsewhere there were attempts to fix prices and enforce government purchasing monopolies. The latter had little effect due to the inefficiencies of the purchasing entities and the ingenuity of farmers to avoid them.

Sahelian governments do not have the financial resources to maintain high producer prices. Continued urban preferences for rice and wheat and the volatility of the residual market for millet and sorghum are likely to limit significant increases in demand and thus will continue to limit incentives to farmers.

Food Aid and Export Subsidies

Other nations' policies also contribute to lower demand for Sahelian cereals. The agricultural policies of major cereal exporters (especially production and export subsidies) (15) and high levels of food aid are factors in lowering demand for domestic cereal production. In the Sahel, food aid has provided as much as 5 percent of aggregate cereal grain supply even in higher rainfall years. In 1985, this rose to 20 percent. The extent to which food aid directly competes with locally produced grain is debated, but indirectly, its long-term presence in local food markets reinforces changing tastes for cereals either not grown (wheat) or inefficiently grown (rice) in the Sahel. Though studies have tried to determine the impact of food aid, their conclusions are ambiguous and there has not been a comprehensive study of food aid effects specifically in the Sahel (63,78,129). The potential for harm, however, indicates a need for careful, Sahel-specific study and particularly for care in determining how much food aid is appropriate and how it should be used.

This problem is difficult to address politically. Commenting on the contradictory effects of food aid on long-term development, the 1983 AID evaluation of its Sahel program observes that:

> While most concede that these imports [of food aid] are dangerously distorting to the domestic cereals sector and that they help create dependency, their short-term utility frequently prevails over desired independence (128).

AID has been slow to systematically address the potential disincentive effects of food aid. For example, in belated response to the 1979 Bellmon Amendment to Section 401(b) of Public Law 480, AID has recently provided its field missions with guidelines to assess issues of price disincentive and availability of storage for food aid (121).

As with other areas of policy reform, a multinational approach to food aid as is currently being attempted under Club du Sahel auspices is probably the most promising effort possible (27). Improved monitoring and more effective early warning systems being organized collectively by donors and Sahelians are required not only to determine urgent need when it does arise but to minimize overreaction and resulting disincentive effects.

While food emergencies must be determined on a local basis, they should be responded to in the context of national or regional strategies. In situations of established need, food aid should be the last recourse. A first step toward mobilizing support of this principle is cautious donor responses to "triangular" food aid, where donors provide cash to purchase surplus food in other portions of the same country, region, or elsewhere in Africa (27). This would provide incentives to African farmers and facilitate the establishment of broader cereal markets in the region. Though major donors have expressed some support for this approach in emergencies, they have much less enthusiastically accepted the use of "triangular" food aid to cope with ongoing structural food shortages.

Encouraging Effective Marketing and Removing Constraints on Private Initiative

It is necessary to remove marketing constraints if farmers are to take advantage of increased prices. Many Sahelian marketing monopolies for export crops are being dismantled or restructured. Possible improvements in marketing systems to increase local economic activity include: transportation (particularly rural road systems, removal of restrictions on private transporters, and improvement of water-based transport where appropriate); market information systems; development of cooperatives; and storage facilities. Many authorities favor removing subsidies on agricultural inputs such as fertilizer and agricultural machinery because they see these as inefficient and costly. In several Sahelian countries, such subsidies have been reduced or eliminated but the result has been a sharp decline in input use. Other experts, pointing out the need to reduce farmer risk if sustainable, intensified production changes are to occur, favor the short-term continuation of selective subsidies (16). They feel that subsidies on designated inputs will result in more specific and quicker responses than less focused increases in producer prices.

Various other constraints to private initiative could also be removed. Reduced government controls on cereal marketing could be extrapolated to a broad range of potential private sector activities affecting agriculture and rural development—e.g., agricultural input distribution, credit, transportation, and local processing (125). The spontaneous success of private millet grinding operations illustrates the potential of the small-scale private sector when controls are absent. The extent to which such activities should be "liberalized" or "privatized" and the current capabilities of the private sector to take them over are subject to considerable debate. Yet general agreement exists on the benefits to be gained from lessening restrictions on independent economic operators, be they individuals, formal cooperatives, or less formal producer groups.

Land Tenure and Regulation of Access to Natural Resources

Reforms in land tenure and other legal and informal systems determining access to and control of natural resources are policy questions needing better analysis. A major constraint to effective analysis of the impact of land tenure and resource access is the lack of knowledge of the traditional rules and customs that are often more influential in determining use patterns than formal laws. Evidence of rapid changes and of disruption in what may have been the environmental balance in these traditional systems as the result of drought, the growth of the market economy, the introduction of new public domain laws, and increased population pressures underline the urgency of these aspects of policy. Programs to encourage farmers and herders to invest in upgrading the fertility of their land, to plant trees, or to begin community controlled fuelwood plantations or natural brush regeneration projects are influenced by these questions of future access and ownership. Equitable methods for determining rights to land in irrigation projects, and for compensating those who lose access to land due to the construction of irrigation systems, are particularly crucial as river basin development plans proceed. These are complex problems both technically and politically. They will require different answers for different land uses, and land reform programs should be designed carefully so they do not create new inequities.

Fiscal and Institutional Reform and Recurrent Costs

Sahelian governments' support for the agricultural and rural development sectors has been undermined by fiscal crises and institutional weaknesses. Overstaffed civil services, ineffective management, corruption, outdated revenue laws, and inefficient tax collection systems have combined with general economic decline to increase government deficits from 1.4 to 12.6 percent of Gross Domestic Product in 1975 to between 9.6 and 22.0 percent in 1984 (22). Technical assistance to help Sahel governments improve their revenue systems and encourage them to tackle the sensitive task of reducing government staff are essential parts of future donor assistance.

Donor attention to the question of recurrent costs, a further important contribution of the Club/CILSS process, has highlighted the negative impacts of donor assistance on Sahelian fiscal health and has increased sensitivity to the still controversial subject of how much aid can be successfully absorbed by a country, the so-called "absorptive capacity" for aid (4). Since recurrent costs are one important factor affecting absorptive capacity, most donors have responded by agreeing to fund some recurrent costs (125). However, some experts caution that such a practice creates a "delusional system that can never be financed by domestic resources" (45). Recurrent costs should be financed only if the Sahelian institutions realistically can be expected to take them over in the long term.

Limitations of Policy Reform

Policy reform in the Sahel is a necessary but still insufficiently understood precondition necessary to carry out the strategies envisioned under the Club/CILSS framework. While the need for an economy less encumbered by government regulation and monopolies and the need to increase incentives to farmers are generally accepted by most Sahel specialists, the details of what exactly should replace current policies and how those incentives should be structured is controversial. To be effective, they must be based on careful analysis of data rather than abstract theories or ideology. Microeconomic data and analysis of Sahelian production systems and of the linkages between macrolevel policies and microlevel responses are inadequate. Within countries, the impacts of particular policy changes are likely to be different on different groups (6,45). The diversity of economies across the Sahel means that reform programs will have to be carefully tailored to each individual situation. Group interests, often powerful ones, are at stake and the political risks are considerable. The extent to which the private sector can be expected to take over many of the functions currently being performed by governments and parastatals must be realistically assessed. Where appropriate, private sector development and support activities may be necessary to ensure that such roles are fulfilled effectively.

The lack of more active African participation in the process of policy reform analysis is a missed opportunity to share perspectives on the need for specific reforms and is a constraint to those reforms being ultimately adopted. Reforms determined by external donors and forced on Sahelian governments lead to minimal commitment, yet strong commitment is essential to sustain the reform process in the face of inevitable political resistance.

Policy reform strategies are not panaceas. They are necessary but not sufficient conditions for the type of future envisioned for the Sahel under the Club/CILSS framework. Policy reforms must be carefully integrated with broad strategies. Within broad policy directions, there are many choices to be made that will determine the ultimate impact. It makes little sense to develop strategies for agricultural development calling for significant increases in Sahelian research and extension programs if those programs are to be gutted by budget cutbacks or policy reform.

BEYOND THE LESSONS: CRITICAL ISSUES TO BE ADDRESSED

While reflection on the lessons learned from the past decades has helped create consensus on what issues and broad directions for the future are most important, there is much less agreement on the relative importance to be given each component, on how the parts relate to each other, and on how those general directions should be translated into specific actions. The early stages of the Club/CILSS effort often gave precedence to the mobilization of resources over the setting of priorities.

Almost a decade into the "contract for a generation," the issues have become clearer. The reality that resources are limited—environmental, technological, managerial, and especially financial—means that important choices will have to be made. The choices made today will have implications reaching far into the future. Selecting one option may effectively eliminate others. Proposals for massive river basin development along the Senegal and Gambia Rivers, for instance, involve major environmental and economic choices that could well foreclose the possibility of returning to previous production systems. The remainder of this chapter will be devoted to highlighting a few of these outstanding critical issues.

The Balance Between Irrigation and Rainfed Agriculture

The priority to be given to the development of irrigation is perhaps the most crucial issue to be resolved as the Club/CILSS program enters its second decade. Though providing far less than requested by Sahelians, donors nonetheless have invested nearly $1.8 billion in irrigation and river basin development since 1975 (25). But donors must now consider what portion of future investment is appropriate for irrigation and how irrigation investment should be allocated between different irrigation approaches.

The catastrophic drought from 1968 to 1973 sparked calls to develop the Sahel's considerable irrigation potential to "drought proof" the region. Although estimates vary, the irrigation potential of the Sahel is considered to be as high as 2.3 million hectares. Only 75,000 hectares were under controlled irrigation in 1977 (30). With such potential for expansion, Sahelians and many donors felt that increased irrigation was vital to attain food security and possibly create surpluses for export.

Experience with irrigation over the past decade, and particularly with large-scale schemes, has been disappointing (30,125). Costs for bringing new land under irrigation have been high (as much as $10,000 per hectare) even without counting the costs of the major engineering works that would be required for future expansion. Operating costs have been higher than anticipated, in large part because of inefficient management by parastatal agencies. Productivity of irrigated areas has been highly variable but generally is lower than expected. Water management has been poor, engineering designs sometimes faulty, and maintenance often nonexistent. One study found that for every hectare of new land going into irrigation almost as much land was being withdrawn, mostly due to improper management (30). Original cost-benefit calculations assumed two crops per year, but this has proven difficult to attain. Expansion of irrigation also has created substantial socioeconomic disruption (e.g., concentration of land rights, loss of access to land for women, loss of water and pasture access for herders, the loss of traditional flood recession farming, and the problems associated with large resettlement schemes) and has given rise to fears of probable negative environmental impacts (e.g., increased water-borne disease; possible destruction of fish, wildlife, and plant communities; salinization and waterlogging of soils) (76).

Given the potentially mushrooming costs and low productivity of irrigation efforts so far, some critics suggest that the considerable resources going into irrigation might be better used to address the constraints of dryland agriculture. Irrigated cereals production received almost three times more donor assistance than rainfed cereals production from 1975 to 1983, even though 95 percent of cereal production comes from dryland farming or traditional irrigation systems (25). Critics point out that, given the nature of the Sahel's major watersheds, even irrigation will be subject to the effects of drought. However, proponents of higher irrigation investment, including most Sahelian governments, still see irrigation as a key element in food security (22). They counter that the limited potential for significant technological advance in dryland agriculture and the ever-present factor of recurrent drought make irrigation the only solution for avoiding continual dependence and cyclical tragedy. They feel that the technological basis for improved performance of irrigation already exists and that the less formidable tasks of improving management of irrigation systems and reducing social and environmental costs can be addressed. Irrigation, they point out, is a slowly maturing investment. The poor performances of the past indicate the need for patience and more determination if Club/CILSS goals are to be met.

The management issues, particularly in choices between different approaches to irrigation, are key elements in the debate over what priority should be given to irrigation. Small-scale irrigation schemes are receiving growing attention as a means of overcoming the limitations of large-scale approaches (83,116). Although still modest in their productivity, small-scale approaches using simple pumps and even manual water lifting devices are seen by many as cost-effective because the overhead costs of massive engineering works are avoided and management problems are reduced. Others point out, however, that the movement toward small-scale approaches does not in itself solve all the problems of larger schemes and in fact may have problems of its own. Engineering problems exist in scaling down known irrigation technologies while the problems of coordinating water use for a multitude of small users are complex. While most agree that large irrigation schemes have been unsuccessful, many feel that the problem is less one of project scale than management scale. Poorly managed small-scale irrigation projects also have failed.

Over the past decade, many Sahelian farmers adopted a wide variety of simple irrigation systems using wells, recessional and flood plain flooding, and permanent and seasonal swamps. But these traditional African forms of irrigation have been largely ignored by Western donors. For instance, little effort has gone into improving the 250,000 hectares currently under recessional and swamp irrigation (60). Also, the Sahel's considerable yet still insufficiently explored groundwater resources remain largely untapped.

The answers to questions regarding irrigation's priority in overall Sahel strategies cannot at this point be resolved. Experience over the past decade has raised sufficient doubts about the economic, social, and environmental viability of proposed large-scale irrigation and river basin development approaches to indicate the need for considerable caution before proceeding. The comparable costs and probable benefits of alternative irrigation approaches and investment in dryland agriculture are equally uncertain. The promising potential of smaller scale systems requires focused investigation to provide policymakers with much clearer information.

Food Production and Export Crops

Similar sets of issues and choices surround the development of rainfed agriculture. Of particular importance is the optimal balance between investment in cereal crops and in export or import-substitution crops. Experts agree that both colonial and immediate post-independence agricultural strategies were biased in favor of export crop production—a bias that most Sahel observers agree has inhibited progress in expanding traditional cereal production. Certainly redressing the imbalance between food and export crops is important, but few experts see it as a simple question of switching totally from one to the other. What should be the optimal mix?

Many authorities argue that a strong role for export crops in agricultural strategies is still justified. Following economic principles of comparative advantage, they theorize that Sahelian countries could have access to more food by developing export crops or other products[4] in which the Sahel is relatively more productive and then using export receipts to purchase the food needs that are unfilled by local production. They point out that the largest and fastest growing portion of the "food gap" is actually rising demand for wheat and rice and these are grown in small quantities and relatively inefficiently in the Sahel. Expansion of irrigated rice production is particularly uneconomical given the high costs of production relative to rice's price on the world market.

The fact that agriculturally based exports account for 14 to 83 percent of total foreign exchange earnings in various countries in the Sahel and that food imports are an important part of total imports means that increased export production in the Sahel can help meet food security and also increase total foreign exchange earnings (see table 5-1).

The current debt crisis has turned increased foreign exchange earnings (and the reduction of foreign exchange costs) into a vital part of strategies for short- to medium-term financial survival. Increasing foreign exchange earnings is also required for successful implementation of strategies to improve food production. Important inputs to intensify agricultural production (fuel, fertilizer, equipment, and irrigation

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[4] Other possibilities include the expansion of mining, fisheries, livestock production, or tourism.

Photo credit: World Bank

Peanut production shaped the history of the Sahel and remains a major source of exports. Debate regarding the relative balance between food and export crop production focuses on crops such as peanuts.

Table 5-1.—Agricultural Exports and Imports as a Percent of Total, 1983

	Agricultural exports as a percent of total exports	Agricultural imports as a percent of total imports
Burkina Faso .	83%	19%
Cape Verde . . .	19	29
Chad	63	10
The Gambia . .	54	31
Mali	77	25
Mauritania	14	42
Niger	21	12
Senegal	29	27

SOURCE: Food and Agriculture Organization, *1985 Country Tables: Basic Data on the Agricultural Sector* (Rome: 1985).

infrastructure, etc.) presently have to be imported. Balancing its call for greater emphasis on food production, the World Bank's influential work, *Accelerated Development in Sub-Saharan Africa*, encouraged African States to intensify efforts to diversify and increase agricultural production for export (153).

However, strategies with high export crop components should be approached with some caution because of the deterioration in the international market for the principal Sahelian agricultural exports. For example, peanut prices have been low generally and during the last cropping season the world price for cotton dropped drastically. The potential is limited for major diversification into other more profitable or more reliable export production. While no one argues for complete self-sufficiency, critics of the World Bank prescription argue that export-biased strategies result in continued high dependence on forces beyond the control of each country and therefore high risk (12). The use of straight cost/benefit analysis to determine rates of return does not sufficiently account for the "dependency" factor. While it is true that world cereal supplies, at least for the medium-term, appear to be sufficient to fill the gap between Sahelian food production and consumption and that food aid is likely to remain available, Sahelians believe that too great a reliance on external sources for food reduces their independence and increases vulnerability. The high priority they give to irrigation is largely a product of that perspective. The assertion that demand for millet and sorghum is largely residual due to growing preference for wheat and rice can also be challenged. Improved methods for processing and storing millet and sorghum, and an end to subsidized prices for wheat and rice, could increase demand for local commodities.

The issue of optimizing investment strategies between food crops and exports is further complicated by the fact that in reality the two production systems are often highly linked. Peanuts are both an export and food crop. In most cases, cereal and export crops are grown by the same households and thus are integrated into single management systems. Intercropping of export and food crops is often practiced. Programs to develop one affect the other. In southern Mali, for example, the after-effects of fertilizer use on cotton has significantly raised the yields of the cereal crops grown in rotation with cotton. Throughout the Sahel, farmers involved in successful intensification programs on export crops appear to use better agronomic practices and have better yields on food crops than those who do not take part in those programs (20). Investment choices between food and export crops must therefore be based on a much more thorough understanding of household production systems as well as more explicit agreement on overall goals.

Strategies for the Livestock Sector

Efforts to improve the productivity of Sahelian livestock systems over the past decade have been largely unsuccessful (46,58,67,130). As a result, major donors such as the United States and the World Bank are evaluating those experiences. The United States has concluded that there is little that can be done to improve existing pastoral systems (125). Even though it is a priority to Sahelians, AID is limiting new programming in the livestock sector.

How much investment in the livestock sector is justified? The lack of success in past livestock programs and an emerging recognition of higher land-use efficiency in traditional transhumant systems (8) have led many experts to agree with Club du Sahel officials in their statement that: "it is perhaps unreasonable to look for greatly increased production from Sahelian herders" (37). They point to how little is known about current systems, particularly pastoral systems, and their complex social and cultural underpinnings.

But what really is the problem: a lack of knowledge or a lack of application of the knowledge that is already there? In most donor research strategies, livestock have been given low priority (58). Yet livestock is the source of livelihood for up to one-fifth of the Sahelian people, and it contributes 22 percent of Gross Domestic Product (125). Thus the livestock sector cannot be ignored.

Developing livestock strategies can be complex because of the diversity of livestock systems in the Sahel. The problems and opportunities for livestock development among extensive pastoral systems are very different from those of sedentary animal husbandry systems further south. Development of strategies for the former is hampered by a lack of agreement on the relationship between pastoral livestock production and environmental degradation. While experts agree on the importance of optimizing range management as part of environmental strategies, there is considerable disagreement on the extent of current degradation, its causes, and preferable solutions. Most believe that total herd size is increasing above the present capability of remaining natural pasture to sustain them. Their solutions tend to focus on programs to decrease herd size in the Sahel zone by increasing off-take rates, by encouraging migration to the south, and by integrating livestock into crop production systems (130). They also seek to improve the management of grasslands and water resources through a wide range of activities (e.g., improved forage crops, water management on pasture land, reseeding using natural systems, fencing) but these latter projects have largely failed.

Some authorities focus on traditional grazing rights as a "tragedy of the commons" argument where free access to communal land encourages abuse by the individual herder (97). These claims are countered by those who argue that traditional systems of water and graz-

Photo credit: World Bank

Photo credit: U.S. Agency for International Development

Livestock, such as goats, sheep, and cattle, are an important feature of Sahelian agriculture but many questions remain regarding effective assistance to herders.

ing rights did in fact control access but the problem is now the disruptions to those systems caused by the spread of cultivation, political interference, and the establishment of semipermanent public-access watering points (67). Although a return to previous management systems is unrealistic, decentralized systems where herders control rangeland and water are seen as the best alternatives (69). Others see improved animal health and marketing possibilities as the best means to increase the productivity and reduce the negative environmental impacts of livestock.

The current confusion over what should be done in the pastoral subsector has convinced many that the greatest potential lies with encouragement of increased mixed farming systems in higher rainfall areas (27,50). Sociocultural factors and animal health and nutrition constraints are key obstacles to expanded and more productive mixed farming. Animal nutrition is particularly problematic given the reduced grazing areas and lower nutritional value of grasses in the higher rainfall areas. These zones are where tsetse fly and other animal health problems are also greatest. Success in projects encouraging mixed farming activities has so far been limited, but increased numbers of cattle are being purchased by farmers. Given the potential benefits to both livestock and crop production (improved forage, animal power, improved soil fertility, etc.) under the more intensified management systems, proponents feel that such strategies should be the principal focus for future livestock programs.

Other important questions regarding overall livestock sector strategies remain largely unanswered. How much emphasis should be placed on small ruminants versus cattle? How much on meat production versus milk production? These options have implications not only on total production and productivity of the livestock sector but also on who will benefit most. How should livestock development be integrated into a broader strategy of resource management? Several experts feel that governments and donors should reserve the northern sections of the Sahel for extensive pastoral systems (148) while concentrating crop intensifying production activities further south.

The importance of Sahelian livestock systems is undeniable. But the donor programs have so far failed to give it much priority or sufficient resources. A more concerted emphasis on livestock, on the development of specific strategies for the diversity of systems under which animals are produced, and the integration of those strategies into overall food security strategies would appear essential in the pursuit of Club/CILSS objectives.

Population Programs: The 50 Million People Question

A further critical issue to be addressed in the Sahel is that of population. The demographic realities are sobering. If current rates of increase continue, by the year 2000 the Sahel will have 50 million inhabitants, nearly double what it had in 1973. Growth of this magnitude challenges food production tremendously. In Senegal, for example, it is estimated that development of the nation's entire irrigation potential over the next two decades would do little more than keep up with the food needs that result from national population growth.

Are the high population growth rates a cause of hunger in the Sahel? Although few experts see population growth as a primary cause of the African crisis, high population growth rates do put great pressure on Sahelian countries to expand food production, employment, and income (61). In some areas high growth rates have led to reductions in fallow periods, and increased the cutting of trees and brush for fuelwood, thus contributing to environmental degradation. Growing populations also strain the capacity of governments to provide health, education, and other services. In times of drought, large populations are particularly at risk.

But to a great extent, population growth rates are an outcome and not a cause of the Sahel's social and economic realities. They are the products of low productivity and poverty. Although reduced over the past two decades, child mortality rates in the Sahel remain among the highest in the world. Children provide a high proportion of agricultural labor. The importance of labor as a constraint in many agricultural production systems and the obligations of children to care for their parents in old age combine to reinforce high fertility patterns. In some urban settings, traditional customs and values that had acted to restrain fertility rates are breaking down as societies face rapid social transformation. High fertility rates are associated with high infant and maternal mortality. They also affect women's well-being and productivity.

Many of the population-related problems in the Sahel are largely problems of high rates of urban population growth—not enough jobs, not enough services, and the growing demand for imported foods. In the medium and long term, however, unless population growth slows or agricultural technologies advance sufficiently, the capability of rural agriculture to feed the people of the Sahel will be exceeded on a much wider scale than today.

Attempts to address the population issue face several constraints. Disagreements exist between the perspectives of donors and Sahelian officials on the nature of the population issue. Many Sahelians believe that the importance of labor in Sahelian agricultural systems makes high population growth essential to increased production, i.e., each new child might represent a new mouth to feed but he or she also represents two hands to work. They feel that the best way to lower population growth rates is to attack poverty. There is evidence, however, that these attitudes are slowly changing. Several Sahelian countries were among those who adopted the Kilimanjaro Program of Action on Population in 1984 which called for ensuring the availability of family planning services to all. Both the Lagos Plan of Action and a recent CILSS/CEA report highlight the constraints of high population growth rates. In The Gambia and Mali, family planning activities have been implemented in urban areas, though with modest results (22), and Burkina Faso is in the process of considering a major population initiative (105).

Still, the Sahel has a long way to go. Modern contraceptive methods are practiced by less than 1 percent of the population (147). The lack of success so far is largely due to a poor understanding of socioeconomic, cultural, and religious dimensions of the issue. Data on fertility patterns and on reasons for fertility decisions necessary for program development are severely lacking. Education for both men and women is a likely starting point (142). But reaching agreement on what the specific role and priority of population programs should be in overall strategies will require a concerted effort of both Sahelians and donors.

Production and Equity

Many of the critical issues to be addressed in the Sahel relate to a debate in development theory which contrasts strategies for increased production with those for increased equity. In the 1970s, dissatisfaction with the "trickle down" approach to development, where growth generated by leading industrial sectors was assumed to eventually increase general welfare, resulted in calls for more poverty-centered approaches. The desire for a new focus led to alternatives that called not only for growth but growth with equity. Embodied in the "New Direction" legislation for U.S. foreign assistance and in the World Bank's espousal of the "basic human needs" approach, the focus was on the poorest and least advantaged. Not only was it suggested that equity objectives were not inconsistent with growth but that indeed, a focus on equity might even be an optimal strategy for accelerating growth. Many of the strategic issues currently facing the Sahel come down to choices between options that are related to the debate between growth of production versus reductions in poverty. Should Sahel strategies focus on geographic areas or groups with the greatest potential for higher production? Or should they instead be directed toward the poorest and most vulnerable? And to what extent are the two approaches mutually compatible?

Geographic Area

What geographic strategy is best—drawing a defensive "Maginot Line" against desertification in the Sahel or abandoning the most severely affected sections of most Sahelian States and focusing on the better rainfed areas (105). The former strategy would focus resources on environmental protection and restoration to halt desertification and work to develop agricultural and livestock technologies for the low rainfall zones. Some experts feel that people in more severely affected areas may be more receptive to innovation because of the urgency of their situation (7).

Others, however, are skeptical. Not only are the technical and logistical challenges in the northern regions likely to be costly and complex, but the pace of environmental change is fast and technologies are not productive enough for farmers to outpace declining productivity (74). The costs of concentrating efforts in the better-watered southern parts of Sahelian countries are considerably lower and the potential for short to medium increases in production are greater.

But what about the large numbers of people in the north? To benefit from new technology, can they or will they move to the south? For those who will not or cannot resettle, what will be their fate? Irrigation offers some potential because many of the better irrigation possibilities are in the north. But there is an equity-related aspect of the irrigation versus rainfed agriculture argument. Even if the maximum area of land were brought under irrigation, it could accommodate only a portion of the total rural population. How will the food security of the rest be covered in years of poor rainfall? And what of equity? Ratios of investment to production over the past decade have been 60 times higher for irrigation than for rainfed agriculture (25). Is such a disparity justified?

Should Assistance Be Aimed at Rural Subgroups?

If so, which ones? The past decade has shown the existence of a higher level of socioeconomic differentiation in the Sahel than had been assumed. Some people feel that the successful technologies of the past decade have benefited the better-off groups while having little or possibly negative effects on the poorest segments of rural society. The absolute poverty of most farmers and herders has meant that even low-cost techniques have been within the means of only a small minority. If the poorest are to be "targeted" it will require a further scaling-down of technology and, in some cases, programs designed specifically for particularly disadvantaged groups.

But does targeting the poorest work? Many experts say no, that the potential for increasing yields among the poorest farmers is very small. Low cost, improved technologies are not available nor likely to be developed. The poorest farmers are already too vulnerable and should not be asked to increase their risk through innovation. Thus some experts believe that small farmer strategies should continue to be geared toward the middle range of farmers who, still poor by most standards, are the only ones who have the means and the security to innovate. Encouraging these farmers, while allowing poorer farmers to continue with existing technologies, would increase total production and also bring indirect benefits to poorer farmers, such as part time employment on the farms of the innovators (84). Special attention to the poorest or any other group is unlikely to result in increased production if it is not based on a careful assessment of their ability and potential to use effectively the increased resources. Many experts feel that targeting does not work because the more powerful are able to win back the advantage through other means.

In the case of women, however, the experience of targeting has been at least partially successful. Studying eight large agricultural development projects in the Sahel, Kathleen Cloud (23) has concluded that:

> Both equity and efficiency are served by projects that take explicit account of men's and women's roles in agricultural systems and design realistic ways of providing them with productivity increasing resources.

A broader study of aid programs for the World Bank comes to the same conclusion (17).

To be more effective, targeting can be indirect. Choices in research for crops that are produced and consumed by the poor offer opportunities to focus resources on poverty—

millet and sorghum as opposed to cotton, goats and sheep as opposed to cattle, and milk production as opposed to meat production. A focus on food processing technologies would have a potentially large impact on women. In policy reform, too, choices made in the specifics of price decontrols, in the scale of private sector enterprise to be supported, in land tenure laws, grazing rights, and fuelwood taxes have differential impacts on different socioeconomic groups and these can be used to reinforce an equity or antipoverty strategy. Better data and improved methods for social cost/benefit analysis of specific policy reforms—which groups gain and lose—could help ensure that policy reform in fact does have positive impacts on the poor.

Issues and Priorities

Many issues remain to be addressed as development strategies change to reflect the lessons of the past decade. Each issue is associated with a broad range of opinion. Many of these differences of opinion occur because we lack adequate knowledge about the Sahel and about the development process.

But for many of the issues, the different opinions on how to proceed reflect differences in objectives. On the Club/CILSS goal of "food self-sufficiency," surface agreement between donors and the CILSS states masks subtle but significant differences. Those differences in turn lead to divergent responses to such basic issues as the relative priority given food versus export crops or irrigation development versus rainfed agriculture. Similar confusion has resulted because different donors set different objectives to meet major goals. At what level is the objective of "food security" to be applied? Is food security primarily an issue for the growing urban population or is it interpreted to refer to all Sahelians, including rural people in years of drought. How are growth and equity to be balanced?

Whether all those involved agree or not, choices will be made. Who will make these choices? On what basis and in what institutional context will they be made? Will the unique regional cooperation among Sahelians and the international dialog between donors and Sahelians be a major factor in shaping them? The progress made so far in clarifying the issues of what needs to be done is remarkable. But the process of addressing the remaining issues will set the stage for future success or failure and will determine the shape of the Sahel of tomorrow.

Sahel experts are frank about the mistakes of the past and insistent on the need to learn from those mistakes. Adjustments in strategy are already taking place. But they must also address a host of questions and issues that so far have been left unanswered.

Chapter 6

Applying the Lessons: The Agency for International Development

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IN BRIEF . . .

The experiences of the past 10 years have taught important lessons about how technologies are combined and applied in development programs and projects. Four problems stand out: the lack of effective participation by the intended recipients of the assistance; the inadequacy of a short-term, product-oriented approach; the complexity of project design; and the inappropriateness of much of the research conducted to support development efforts. Although more appropriate technologies and better development methods are essential if future efforts in the Sahel are to be more effective than those of the past, it is equally important to ensure that the policy environment is supportive. Low priority for agriculture, inappropriate cereals policy, constraints on the private sector, and the need for fiscal reform have all hindered development. Appropriate policy reform alone is not sufficient to obtain food security for the people of the Sahel, but it is a necessary part of the process.

The challenge for future development efforts in the Sahel is to move to new modes of assistance that are more consistent with the nature of the Sahel and the long-range goals of food security, environmental stabilization, and economic growth. The United States can continue to play a key role in this multinational development effort if it can incorporate the past decade's experiences into a more effective strategy. Chapter 6 examines how AID has responded to the lessons learned in the past decade in the Sahel. Highlights of the chapter include:

- The most recent revision of AID's Sahel development strategy (1984) shares many basic Club/CILSS goals and it has incorporated many of the lessons learned in the past decade. It places priority on agricultural research and production, policy reform, health and family planning, training, infrastructure, and environmental protection. It also calls for continued coordination of all donor and Sahelian programs.
- AID has not seriously addressed the issues of effective farmer and herder participation or given adequate attention to the importance of women in Sahelian agricultural systems. To date, the gap between rhetoric and reality is substantial.
- AID's effectiveness in applying the lessons of the past decade faces constraints in four areas: 1) the ambiguity of AID's regional Sahel strategy, 2) internal institutional characteristics of AID, 3) the nature of AID's relationship to Congress, and 4) the lack of agreement about the role of development assistance in overall U.S. foreign policy.
- These problems are not unique to the Sahel—they diminish the effectiveness of many AID activities—but they are particularly acute in the Sahel because of the level and special multinational characteristics of the U.S. commitment there.

INCORPORATING THE LESSONS

Evolving Strategies

The United States was a major actor in developing the multinational Club/CILSS framework and has continued to play an active role in the evolution of its strategies. The Agency for International Development's (AID) Sahel Development Program objectives and strategies have largely paralleled those of the Club/CILSS. A 1976 AID proposal to Congress outlined a broad, phased approach to obtaining increased food security and building a foundation for long-term growth in the Sahel. AID concluded:

> While the return of normal rains in 1974 helped overcome the immediate emergency, it was clear that this region could not return to its traditional system and hope to survive. Food production had to be modernized. Traditional livestock systems, which existed on otherwise unprofitable lands, had to be modified to permit greater conservation of the rangelands. Indeed, whole new farming systems need to be introduced so that farmers could afford to benefit from more of the advantages of modernization. Only in this way could the area become capable of meeting its own basic needs for food and development (133).

Under the proposed program, the short-term phase of the strategy, 1976 to 1980, was to include immediate application of existing technologies in crop production, protection, and storage; use of information from small-scale efforts in larger integrated rural development, dryland farming, regional range management, and livestock production projects; infrastructure studies; health care and training programs; studies to prepare longer term, river basin development projects; and training and institution-building. The medium-term phase, 1980 to 1990, was to focus on expanding the productive capacity of dryland farmers, adding new technologies, expanding commercial activity, and continuing preparation for the long-term projects. The final phase, 1990 and onward, would tap the larger resources of the region, particularly the river basins, in a move toward food self-sufficiency and self-sustaining economic growth.

To support this strategy, AID developed a broad, multisector project portfolio in each of the Sahelian countries and was actively involved in the development of the Club and regional institutions such as CILSS and the Senegal, Gambia, and Niger River Basin development organizations. Projects in agricultural research and extension, crop protection, livestock and range management, integrated rural development, forestry, health, small-scale irrigation, and river basin development predominated. Training, much of it at U.S. universities, was a major component of many projects.

The experiences and lessons AID learned in the Sahel in implementing that program are similar to those of the larger Club/CILSS experience.[1] Through experience, AID learned that much of its short- and medium-term strategy was based on inaccurate technical and institutional assumptions. The "extension" focus of most projects failed for want of appropriate technologies or of effective systems to deliver them to farmers and herders. AID came to recognize the shortcomings of complex design through experiences in integrated rural development projects in Mali, Burkina Faso, Niger, and Senegal. Though many experts still believe its response was inadequate, AID has been a leader in emphasizing the long-term danger of the environmental problems in the Sahel and was active in reforestation and conservation. This taught many lessons about the difficulty and high cost of large-scale approaches and spurred the increased use of pilot community forestry and agro-forestry alternatives. AID also was active in highlighting the issues of recurrent costs and cereal policies. Although AID has remained active in the Club/CILSS process, its original enthusiasm and active support, particularly for CILSS, has moderated following that organization's less-than-hoped-for record. AID instead has shifted its attention to bilateral approaches.

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[1] See the executive summary of AID's 1983 SDP evaluation (app. F).

The specific impact of AID's Sahel Development Program (SDP) is difficult to separate from the overall multidonor effort. Although AID's participation in the Club/CILSS framework was influential, AID programs represent less than 10 percent of all donor assistance to the Sahel.[2] AID's record in individual country programs and projects is similar to that of the entire donor community. Overall, AID projects often have fallen short of their objectives but they have not done significantly better or worse than others. There have been some accomplishments, but AID has shared in a general failure in livestock and rangeland management, dryland farming, and integrated rural development. It has been most successful in aspects of training, socioeconomic data collection, reforestation, rural health, and though the final impacts are yet to be seen, in recent agricultural research and policy reform efforts. Like its partners in the Sahel effort, many of AID's greatest accomplishments have been the lessons it has learned about the nature of the development challenge and about identifying the issues that donors and recipients in the Sahel must address for the future.

AID's Revised Sahel Strategy

In 1984, AID modified its Sahel strategy to respond to a series of internal and external evaluations. The "Fiscal Year 1986 Country Development Strategy Statement"[3] for the Sahel explicitly attempts to incorporate the lessons of the past decade's experiences (125). Consistent with other major donor thinking, the strategy speaks of food "self-reliance"—the goal of meeting food needs through a combination of production and trade, rather than food "self-sufficiency" as had earlier been the goal for the multinational effort. The revised strategy statement embodies several additional modifications:[4]

- an increased role for economic stabilization and policy reform using policy dialog, Economic Support Funds, or Public Law-480 resources;
- a continued emphasis on increased food production as the primary goal but new effort to ensure that other activities (such as health, education, and forestry) are consistent with and complement strategies to increase food availability;
- an increased priority for research (especially in agriculture, forestry, livestock, water management, and the environment) in recognition of the inadequacies of existing technologies;
- a decrease in livestock programs for pastoral production systems;
- a cautious but systematic approach to irrigation development focusing on small-scale systems and rehabilitation of existing systems;
- an increased importance given to the role of the private sector; and
- more focused project portfolios with fewer sectors and fewer projects.

These and the other provisions of AID's new strategy are consistent with the conclusions drawn by other Sahel authorities from the past decade's experiences. But more detailed analysis of the Sahel strategy and AID's subsequent submissions to Congress raise questions about the extent to which several aspects of the SDP have actually incorporated the lessons of the past decade. Several important issues are inadequately addressed in the statement and the manner in which others are to be implemented is left ambiguous.

A Return to Trickle Down?

AID's current strategy for the Sahel focuses on creating a better "environment" for development programs to work. It includes increased financial incentives to Sahelian governments to support policy reform, for example, to soften the impact of things such as urban food price increases, with the hope that the ultimate impact of the reforms will "trickle down" to benefit the entire population. The strategy also calls for programs to increase local productive ca-

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[2] The United States has, however, contributed 26 percent of all food aid and 16 percent of total donor effort in dryland agriculture. (See table A-4 in app. A.)

[3] This document is actually a regional development strategy statement but the cover title of the document was incorrectly printed as the Sahel "Country" Development Strategy Statement.

[4] The executive summary of the 1984 strategy is contained in app. E.

Photo credit: U.S. Peace Corps

Policy reforms are an important part of AID's revised Sahel development strategy. One goal is to ensure that marketplace food prices reward farmers adequately.

pacity through infrastructure and institution-building activities and increased research in a wide range of sectors.

The way such "constraint removing" development strategies are organized, however, can have very different impacts on the lives of the poor majority which AID is directed by Congress to help. Is the new AID strategy a departure from existing strategies that focus on direct assistance to the poor? Which prices are to be adjusted? Whose standard of living will be maintained? Which institutions are to be supported, which roads built, which crops researched? Each of these questions illustrates the type of critical choices that can have very different impacts on the poor. Is the focus to improve the development "environment" primarily to increase aggregate economic production rather than reduce poverty? Neither the consensus of development experts nor the lessons learned in the past indicate that it is desirable to return to the "trickle down" development theories of the 1960s. But AID's Sahel strategy lacks guidance on this issue and bolsters fears that the current administration's aid policies are a general retreat from assistance to the poor (88).

The Role of the Farmer and Herder

The AID strategy document continues to direct activities toward small agriculturalists and mentions the need for greater farmer participation in research and other activities, but it is unclear about how the role of those farmers is to be defined or about which farmers are to be included. The crucial strategy question of how to balance the search for higher economic production with greater equity is not addressed or even acknowledged as a problem. There is no mention of the demonstrated importance of gender analysis as an essential element in all project activities. The call for farmer and herder participation can mean many different things and in AID's Sahel strategy its meaning is unclear. While the strategy acknowledges the efficiency of traditional production systems, there is no discussion of how those traditional technologies could be better integrated in future technology development and diffusion.

Addressing the Issues

The AID strategy fails to address many of the critical issues identified in the previous chapter. How are increasingly scarce resources to be allocated between irrigation and dryland agriculture, between food and export crops, between different ecological zones or socioeconomic groups? How should the livestock sector be approached? How are population issues to be addressed? What pattern of international trade relations should the Sahelian States pursue and what portion of food security should be filled by trade? SDP officials in Washington and the field recognize the importance of these issues but the strategy does not give high priority to their resolution. Each issue involves choices which, by their nature, must be made by Sahelians. But donors, collectively and individually, have a responsibility within the Club/CILSS partnership to help in the data collection and analysis necessary to support these choices.

Setting U.S. Priorities

AID's strategy supports the overall goal of increased food production, but provides no guidelines for setting priorities within that goal. While claiming that AID is narrowing the range

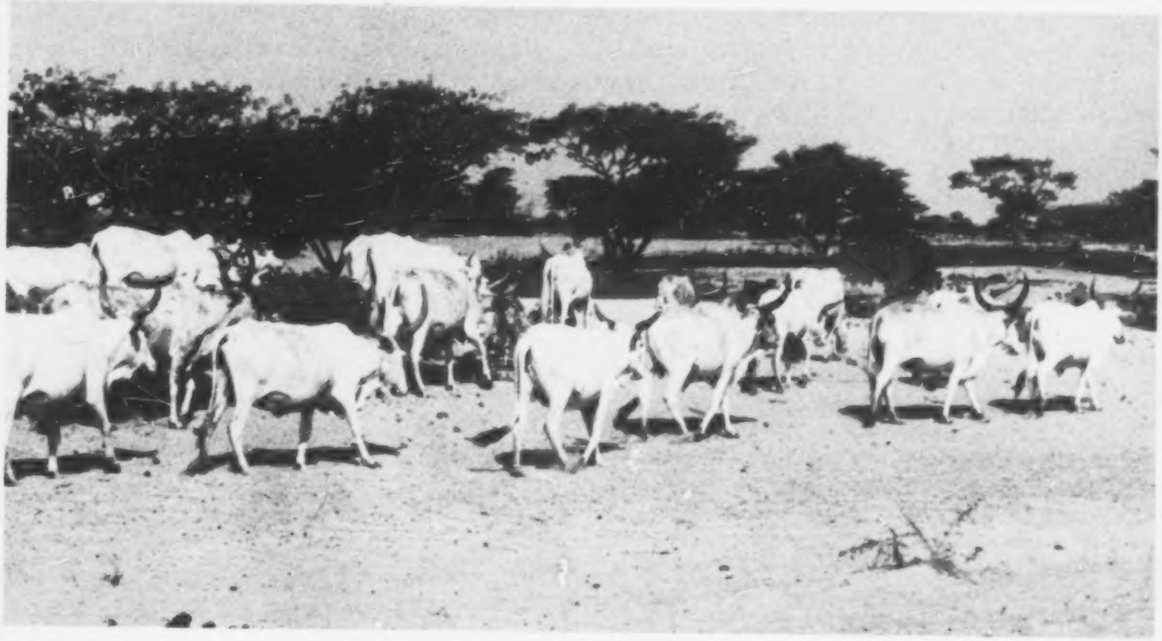

Photo credit: U.S. Peace Corps

AID's strategy for development in the Sahel leaves some critical issues unresolved, for example, how the United States will assist herders.

of projects under SDP and withdrawing from sectors where its expertise or management capability has proven too limited, the strategy statement does not indicate what those areas are or how they are to be determined. The list of critical areas provided in the program's 1985 report to Congress is extensive and does not indicate a narrowing of focus. The United States has strengths in water resource development, socioeconomic data collection and analysis, macroeconomic policy analysis, agroclimatology, research methodologies, forestry, fisheries, food processing, and other areas needed in the Sahel. A more systematic matching of those strengths with specific program priorities would enhance the AID strategy.

Lack of a Systematic Approach

Setting priorities is clearly important, but so is establishing links among the components. While addressing the need for activities in every sector to be consistent with the goal of increased food production, the strategy itself fails to integrate its discussion of sector activities into a systematic whole. The absence of adequate emphasis on the interrelatedness of activities at both the national and the farm level could lead to a continuation of the unconnected program approaches of the past. There is a particular need to take advantage of the opportunities and flexibility provided by "program assistance" such as Economic Support Funds food aid, and more general technical assistance to complement project activities. More effective integration of food aid into global agricultural sector strategies is essential.

IMPLEMENTING THE STRATEGY

AID's new strategy contains inherent ambiguities that could potentially create problems and inconsistencies as it is implemented. The impact of the new strategy will depend on how it is implemented. Many elements suggested in chapter 4 and embodied in AID's new strategy have been part of AID's professed strategies since the beginning of the Sahel effort. The importance of farmer participation, the need to look at agricultural productivity in the context of environmental sustainability, the key variable of "risk perception" among farmers, the importance of institutional development and others are to be found in program descriptions, project documents, and evaluations throughout the 1970s. While AID, like other donors, has been gaining experience and expertise, the gap between stated strategies and actual performance—between rhetoric and reality—is often wide.

AID officials and observers frequently suggest that the key to increasing AID's effectiveness in the Sahel is less a question of refining its strategies than of removing the obstacles that block those strategies from becoming viable programs and projects. Observers both inside and outside AID identify several institutional characteristics that may partly explain the gap between strategy and implementation. Although these factors are interrelated, they can be categorized into those specific to AID internally, those that are the product of AID's relationship with Congress, and those more generally related to AID's role within U.S. foreign policy.

The Internal AID Context

Characteristics internal to AID that observers feel constrain its effectiveness in the Sahel include staff issues, factors that limit direct contact with farmers, elements of its programming and project design systems, and tensions between centralized and decentralized decisionmaking.

Staff

AID staff in the Sahel has been limited in both quantity and quality. In 1974, only Senegal and Niger had full AID missions and only 25 American staff served the entire region. By 1978, that number expanded to 96 and by 1984 there were 130 direct-hire American positions (125,134). But despite the speed with which AID missions grew, inadequate staffing of field missions was still cited as a major cause for the failure of food production projects (127). Contrary to the recommendations of internal audits, staff levels in most Sahel missions have been reduced and plans call for further reductions. Not only have staff shortages affected AID's effectiveness, but the prospects of further reductions could preclude the more labor-intensive analysis and ongoing management required for participatory and institution-building activities. Staff shortages could force the agency to emphasize programs with fewer management demands (e.g., economic stabilization, infrastructure, and agricultural projects in more accessible, better-watered areas) rather than basing those decisions on considerations related to implementing its strategy.

The lack of appropriate skills and Sahel-specific experience of many AID technicians and programmers involved in the development of AID's early Sahel programs were factors in the design errors of those programs. The lack of Sahel-specific expertise was particularly constraining:

> AID's development effort initially had little information and understanding of the physical, institutional, and policy environment in which economic improvement was to take place (125).

U.S. expertise in arid land agricultural technologies proved largely inapplicable for technical and socioeconomic reasons, though many mistakes were made before this was realized. Much of AID's Sahel staff is trained in general program areas rather than in specific technical fields. The proportion of generalists within AID is rising and technicians complain that they have little input into major decisions.

The lack of French-speaking programmers and technicians has compounded the staffing problem, resulting in: 1) major communication problems with Sahelian partners, 2) coordination difficulties with other donors, and 3) difficulty in using the wealth of experience and data collected by the French during the century of their presence in West Africa.

AID direct-hire staff are only a part of the total personnel that AID uses in its Sahel operations. A variety of contractors (individuals, universities, consulting firms, and private voluntary organizations) perform tasks ranging from logistical support to the design, implementation, and evaluation of AID projects. While the use of contract personnel has increased the pool of skills available to AID, it does not necessarily resolve staffing problems. Contract personnel, particularly early on, did not have significantly greater Sahel experience or French skills than did AID direct-hire staff. Costs are high (between $100,000 to $150,000 per year for each contractor) and outside personnel answer to institutions that often have different objectives and agendas (65). More importantly, the use of short-term outside consultants reduces institutional learning within AID and can limit the use of integrated strategies.

AID also hires local staff, but this pool of expertise is poorly tapped. Local staff often are the informal institutional memory of AID missions, but they are usually occupied with routine work and are infrequently used to help with program development and management. This wastes the potential their special perspective could offer and misses an opportunity to increase their skills in a form of internal institution-building.

A decade of experience in the Sahel has greatly improved American expertise within AID, in universities, and among consultants. The village-level work experience of the Peace Corps has proven an effective training ground. But the turnover inherent in 2-year tours and the division of responsibilities between direct-hire and contract personnel have inhibited consistent institutional learning. The lack of ability to speak French continues to be a problem, partly because U.S. universities have been experiencing declines in French language study. Also, U.S. universities not only appear to be experiencing declines in enrollment in agriculturally related programs (with the possible exception of agricultural economics) but the training they provide is relevant to U.S. agricultural systems. Thus AID is likely to face a continuing problem obtaining a future supply of appropriately trained staff for the Sahel program.

Contact With Farmers and Herders

A strong need for a high degree of dialog between donors and Sahelians exists at every level. Cultural and linguistic barriers, far beyond French language skills, face AID staff and contractors in the pursuit of that dialog. While dialog is difficult enough at the level of national development agencies, the communication gap increases at the village level where the official languages (French, English, or Portuguese) are rarely spoken and where cultural differences are the greatest. In addition to linguistic and cultural skills, such a dialog requires desire, time, and a broad, open-minded perspective.

Institutional dynamics within AID limit the extent and effectiveness of contacts with farmers and herders. Staff shortages, limited travel budgets, and overburdening paperwork are seen as particularly important in limiting contacts. The lifestyle of most members of the official donor community, the majority of whom live in prosperous enclaves within capital cities, increases the perceptual gap between them and the rural poor (19). Some Europeans in the Sahel feel that AID mission personnel are unnecessarily cut off not only from farmers but also from government officials. "They tend to keep to themselves," was a comment made by several otherwise sympathetic observers.

Weakness in Program and Project Design Processes

Over the years, AID has developed a complex system for determining its strategies and designing its programs and projects. Some aspects of these systems limit the potential for the type of long-term, integrated, flexible programming needed in the Sahel. OTA has identified weaknesses in six areas:

1. *Project Selection*: The method by which AID develops individual country strategies may not provide the kind of micro-level data collection and analysis needed to select good projects.
2. *Analytical Skills*: High level analytical skills to do the economic, environmental, or social analysis called for in program design are often lacking. As a result, "formula" solutions are substituted in place of country-specific programming. The diversity and complexity of the Sahel is often overlooked.
3. *Organization of Components*: Sectoral analysis and project identification, design, approval, and implementation, as well as monitoring and evaluation, are performed by different groups and individuals, and increasingly by contractors external to AID. While there are benefits from different perspectives and independent monitoring and evaluation, the lack of connection between stages in a project leads to inconsistency and lack of accountability, especially among those responsible for program and project design. The separation is mirrored in AID's Washington management structure. Technical support, program, evaluation, and budgeting are located in different offices (even in different buildings), with insufficient coordination among them.
4. *Evaluation and Monitoring*: Poor linkage exists beween evaluation activities and other parts of the system, so the lessons of failure and success are often not used to modify programs or design new activities. Evaluation tends to take an "audit" approach based on narrowly defined and quantifiable objectives rather than on questions of broader impact. In principle all projects include ongoing monitoring, but in practice these receive insufficient resources. By the time problems are discovered, it is often too late to correct them (127) often making project management, in fact,

crisis management. Furthermore, evaluations have been used more to identify failures than to document reasons for successes. They are not used sufficiently by the agency to institutionalize learning.

5. *Timing*: Despite efforts to improve the situation, projects often are not implemented until 3 years after their initial identification. In the meantime, many of the important assumptions and agreements on which they were based may no longer be valid. The lack of design flexibility makes adaptation to changes difficult.
6. *Project Design*: During the early phase of SDP, AID reward structures were oriented to large program size and rapid obligation of funds. Long-time AID observers bemoan the fact that AID still favors the designer and the obligator of funds over the project implementor and manager. The result is a bias toward large-scale, complex projects, with inadequate attention to field realities or management capabilities within AID or the host country.

A 1983 survey of Sahel AID missions reported that design problems contributed to project difficulties in 24 of 25 projects. Two-thirds of the projects were judged to have been overly ambitious (128). The size and complexity of projects was identified as one of six reasons for the failure or poor performance of all seven food production projects studied in another internal AID audit (127).

Regional Strategy v. Country Programs

When SDP began, the concept of a coordinated, long-term, subregionally focused program with a separate budget and management was new to AID. It was controversial from the start and it highlighted the already problematic relationship between Washington and the field. Some AID Sahel field staff feel that AID is overly centralized in its decisionmaking. Attempts to mold country programs to correspond with a regional strategy, particularly in the early days, exacerbated that problem. What does a regional strategy signify? What is its relationship to AID's Africa strategy? How should the individual country staff participate in the elaboration of the regional strategy? To what extent and by what mechanisms were individual country programs to be made consistent with that strategy? What would be the balance between resource allocation to regional activities as opposed to country programs? The answer to each of these questions has varied over the course of SDP's history.

Tensions between the individual field missions and regional management have existed from the program's beginning. To many in the field, even though SDP was the basis for creating AID missions in the Sahel it was basically a Washington and Paris-based idea that never became a reality to the missions. It was fairly idealistic and early SDP-generated regional projects often bore little relationship to the AID mission directors' perception of country needs. While the regional approach to programming is appealing in theory, it is difficult in practice. Country mission staff worked with national governments that were often less than enthusiastic about shifting resources to regional organizations. AID missions in the Sahel are under the supervision of ambassadors whose mandates are national, not regional and who, because the United States had few other interests in the countries, often became much more involved in AID programming than ambassadors elsewhere.

Several aspects of AID's regional Sahel approach have been downplayed in the past 4 years. Contrary to the recommendations of the 1983 SDP assessment, AID has disbanded the multidisciplinary regional planning team, based in Bamako, Mali, that was charged with providing support to country missions and with spearheading the formulation of regional strategies. The proportion of regional programs (versus bilateral) within the Sahel budget has dropped from 40 percent in the early 1980s to under 30 percent in 1985 and is projected to decline further over the next 4 years (125). Much of the funding for river basin development is being folded back into bilateral accounts.

The decision to lessen the regional nature of SDP has been based on what AID considers an important lesson of the past decade. To a large extent, this decision reflects greater realism about the limitations of regional development efforts. But, to a lesser extent AID risks losing some of the potential that the regional perspective and the Club/CILSS framework have in making the most effective use of all donor resources. While stressing the continuing importance of international coordination through the Club/CILSS framework and related structures, AID has pulled back from active support of African regional institutions. AID's current approach is to "think regionally while implementing programs nationally" given that power and sovereignty continue to rest in the nation States (125).

How much these changes are changes of approach rather than changes in the level of commitment to the Sahel or to the multinational nature of the Sahel effort is unclear. They are, however, consistent with other changes in U.S. foreign assistance, which is generally moving toward increased bilateralism (88). U.S. criticisms of CILSS have been important in that organization's recent reform. Continued U.S. support is needed to maximize those gains and to facilitate the limited but positive potential role that CILSS has to play.

Constraints on the Congress-AID Relationship

A second set of institutional factors that limit AID's effectiveness in implementing its Sahel strategy involves the manner in which AID and Congress work together. It includes the effects of a generally poor working relationship between the two and the specific mechanisms by which Congress tries to influence AID's policies. The formulation of the U.S. commitment to the Sahel began in a close working relationship between Congress and AID (37). That partnership has not, however, translated into a sustained, working relationship in the implementation of the Sahel program. Once the commitment was made, relations with Congress regarding SDP have been largely consistent with the pattern of Congress-AID relations generally—a relationship that both sides have described as ineffective and, at times, bordering on the adversarial.

The timeframe and cost of the original U.S. commitment to the Sahel was not universally supported in AID or in Congress. In order to gain its acceptance, the concept was presented with expectations for dramatic short-term results. Unrealistic congressional expectations were in part the result of mistaken assumptions about the availability of technologies but they are also in part due to the language in which the Sahel program had been presented. In the words of AID field staff: "the program was certainly oversold."

Some authorities speculate that the lack of more effective communication and the systematic overselling of AID programs in justifying its budget works against Congress developing a more sophisticated understanding of the long-term nature of the development process and this ultimately generates unattainable goals for AID field staff. The problematic relationship between Congress and AID inhibits the impact the United States has in achieving Club/CILSS goals. Short-term funding cycles, multiple policy mandates, procurement and financial regulations, and the conflicts created from divided congressional responsibilities on matters that affect the Sahel all contribute to the lack of effectiveness.

Funding

SDP receives funds as part of the annual congressional appropriation for foreign assistance. Lack of a strong domestic constituency for foreign assistance and the complexity of the foreign appropriations bill, which includes funding for a broad range of military and economic assistance programs, multilateral agencies, and other U.S. programs operating abroad, and the controversial nature of many of these elements, have made it difficult to pass funding bills. In 7 out of the last 9 years, funding has been through stop-gap continuing resolutions. Annual budget cycles inhibit achieving consistency and the long-range strategies required for effective programs in the Sahel.

In principle, the major advantages of the SDP portions of Sahel funding[5] are the fact that they have been appropriated on a "no-year" basis, i.e., once authorized they do not have to be obligated that fiscal year, and funds cannot be reassigned to other programs except for disaster assistance. The defensive relationship with Congress, however, has given rise to fears within AID management that future funding will be reduced unless appropriated funds are spent quickly. As a result, AID has chosen not to use the no-year funding provision. The yearly budget cycle puts added pressure on AID to produce quick results to justify continuing funding levels. The overall effect of the budget process is thus biased toward short funding cycles, quick obligations, and short-term projects.

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[5] This does not include Economic Support Funds or Public Law-480 resources which are funded separately.

Multiple Mandates

Overall policy guidance on the objectives and focus of U.S. foreign assistance programs are embodied in the Foreign Assistance Act of 1961. A substantial amendment in 1973 defined the "New Directions" for foreign assistance that called on AID to focus its development assistance programs on the poor majorities in the poorest developing countries. While the new policy eventually did have a major impact on AID programming, Congress/AID dialog on these New Directions has not been easy (137). It has been complicated by a series of amendments to the Foreign Assistance Act that have mandated a succession of additional, more specific new policy directions such as women in development, family planning, infant survival, the use of private voluntary organizations, the environment, capital-saving technology, and others.

AID's attempts to appear responsive to these directives have led to frequently changing priorities. Succeeding administrations, seeking to place their own stamp on foreign assistance programs, have added additional and at times contradictory directives to the field. As new mandates have been added, the old ones remain and confusion about the direction of programming grows. Field staff see the problem not in the correctness of any individual policy approach but rather in the rapidity with which the policies have changed. These changing signals disrupt programs that by their nature require longer term, reasonably stable commitments. Policy mandates also act to diminish local flexibility to adapt programming to specific local needs and host country priorities.

Procurement and Financial Controls

The procurement and financial controls placed on AID by Congress have also constrained AID's operations. The general requirement to use U.S.-produced equipment and other project inputs is a particularly sore spot in the Sahel. For historical as well as geographical reasons, most of the Sahel's trade ties are to France and Europe. Congressionally mandated AID requirements to use American equipment have proven ineffective in stimulating new markets for U.S. goods, a major objective of such measures. Meanwhile, they have complicated and even hindered project operations. Delivery time of U.S. equipment has been long and inoperative U.S. vehicles, pumps, and other equipment litter the Sahel for want of spare parts, maintenance skills, or operating funds. Medicines used in important AID village-level primary health care programs often come with doses written in English. In addition, these "buy American" requirements have led to the use of inappropriate capital-intensive technologies.

The United States is not the only donor with such requirements. Efforts at coordination in multinational project development often have been delayed and in some cases stymied by conflicting procurement regulations. The requirement by each major donor to purchase equipment at home also increases the administrative burden on the Sahelian institutions that must deal with the variety of equipment. So-called "tied aid provisions" for equipment and technical assistance have greatly increased the total cost of aid, and, from the perspective of the Sahelian recipients, greatly diminished its value to them. Again, the defensive relationship between AID and Congress has resulted in AID's not using its authority to waive tied aid in some areas of procurement.

Financial control has always been a major area of congressional oversight on AID. The rapid expansion of aid programs in the poverty-stricken and administratively weak Sahel and

AID's inadequate field staff resulted in a predictable amount of mismanagement and some cases of misappropriation (134). In 1981, following a series of negative audits, Congress enacted a section of the Foreign Assistance Act that required the AID Administrator to determine that Sahelian countries have adequate controls over assistance funds. While the resulting measures, and particularly the accompanying efforts to improve management skills under the Sahel Regional Financial Management Project, have improved an admittedly unacceptable situation, many observers feel that they have gone too far. The strictness of the new regulations is seen to be unrealistic given current Sahelian managerial and cultural realities. It has caused set-backs in the "partnership" between U.S. and Sahelian officials, has tied up both AID and Sahelian staff in excess paperwork, and has eliminated the potential positive impact of more active participation by smaller Sahelian businesses and PVOs. While proper financial control is unquestionably important, a better balance between financial control and development objectives would facilitate AID's work in the Sahel.

Congressional Coordination

SDP is just one of many U.S. programs and policies that affect the Sahel. U.S. decisions on food aid, domestic agricultural price supports, trade policy, interest rates, and overseas investment, as well as positions on international debt and finance as expressed through U.S. participation in the International Monetary Fund, the World Bank, and other agencies, have varying degrees of direct or indirect impact on the Sahel. Policies affecting the value of the dollar, international cereal prices, interest rates, food aid, and debt may affect the poor of the Sahel more than development assistance. These policy areas are usually dealt with by different congressional committees where the potential conflict or complementarity with other actions regarding the Sahel is rarely considered. Although better coordination between the executive branch agencies that implement these programs and policies is crucial, better internal congressional coordination focusing on ways to minimize "taking away with one hand what we give with the other" would greatly enhance the coherence and impact of the U.S. commitment to the region.

Congressional Tools for Influencing AID Policies

Congress uses a variety of methods to enforce its policy directives to AID, such as requirements for periodic written reports, congressional inquiries, legislative requirements for procurement regulations, special reports, testimony, GAO audits, and congressional notification for program or budget changes. Many AID staff feel that the major impact of congressional mandates and oversight is a substantial increase in paperwork and bureaucratic hurdles. Some estimate that they spend up to one-fourth of their time responding to congressional inquiries or fulfilling internal administrative requirements. Requirements for technical or congressional notification for minor changes in project funding or timing, while not overly burdensome, do create extra paperwork and hinder the flexible design systems needed in the Sahel. Private voluntary groups working in the Sahel and funded by AID report similar frustrations.

But AID/Washington may compound the problem by trying to anticipate Congress and by systematically going one step beyond congressional requirements. Some characterize the agency as "always looking over its shoulder" in its relationship with Congress, using field data to justify its budget requests rather than as a basis for developing its programs. They contend that the field serves Washington's needs rather than the other way around.

The impact of congressional policy mandates are often less than reported. Field staff have learned to present what they are doing in whatever terms are called for by current policy. Mandated targeting of specific groups, such as women or the rural poor, or special program considerations such as environmental impact or health, can result in tacked-on components or paragraphs in project documentation rather than concrete integration into program design.

The number of such mandates and the administrative burden they bring discourage field staff from embracing the spirit of such directions and more creatively implementing them. Stressing the uniqueness of each situation, field staff rankle at the rigidity of some measures such as current requirement that at least 12 percent of funds pass through private voluntary organizations (PVOs). AID staff did not disagree with the positive role that PVOs can play but they stressed the variability in PVO performance and in opportunities for collaborating with them. They questioned the wisdom of basing decisions on general quotas rather than on careful analysis of needs and opportunities in a specific country.

Many AID staff are frustrated that the partnership between Congress and AID that gave birth to the Sahel program in the mid-1970s has not been carried through in operations. Compared to other programs within AID, the SDP's special budgetary and management provisions and the continuing congressional interest in the Sahel are an advantage in these times of tight budgets, but that special status may be eroding. Congressional/AID relations could be a source of opportunity, but instead they are seen by many as reducing AID's ability to be effective in fulfilling the U.S. commitment.

Development Assistance and Foreign Policy Objectives in the Sahel

Foreign aid generally lacks strong domestic support, so U.S. development assistance is often justified in terms of U.S. "national interest." Those national interests are multiple—strategic, political, economic, cultural, and humanitarian. The interests most referred to in backing a U.S. commitment to the Sahel are largely the last—humanitarian.

This is not to say that the expansion of the Sahel program has been without other motives. The Sahel drought was seen by some as an opportunity to make inroads into French political and economic dominance in the zone. Increasing domestic political influence among black Americans also challenged the State Department and AID to take Africa more seriously and end the neglect that had characterized America's relationships with Africa. Though the benefits to U.S. firms have been lower and less permanent than hoped for, tied aid provisions and especially food aid brought sizable economic gains back to the United States. The moderate political stances of Senegal and Niger are of at least some importance. Senegal has been a particularly helpful moderating voice in African and international arenas. It has participated in peace-keeping activities in the Middle East, Zaire, and Chad. Nonetheless, the primary justification for U.S. support of SDP was built on the outpouring of public opinion following the 1967 to 1973 drought.

Photo credit: U.S. Agency for International Development

Americans respond generously to calls for famine relief, especially when children are threatened with starvation. Broader humanitarian concerns such as long-term development assistance usually receive little public support.

Since the change in administrations in 1981, the increased bilateralism in foreign assistance and its use to support U.S. political positions has led to fears that the primary basis of the U.S. development assistance to the Sahel might be changing from that of long-term development to short-term political interests. Several AID staff members felt that in the past, the Sahel Development Program had the advantage of being insulated from most political factors. That seems to be decreasingly the case. In the 1984 Sahel Strategy Statement, political and strategic interests in Sahel are mentioned explicitly:

> U.S. contact with the Sahel is compassionate but also pragmatic, the latter particularly with regard to Senegal, Niger, and Chad where we have compelling political/security interests. U.S. political concerns in these and other Sahel countries are inter-woven with numerous international and domestic factors, economic considerations and humanitarian interests. All have a bearing on the achievement of U.S. objectives in the Sahel and the Sahel Development Program has a key role to play in accomplishing these goals (125).

Though the nature of the political and security interests is not elaborated, it presumably involves growing U.S. concern with the destabilizing force of Libya in light of its troop involvement in Chad and alleged involvement with dissident groups in several Sahelian States.

In another example of the change to more political uses of AID's Sahel assistance programs, the State Department mandated cuts in project funding to the new government of Burkina Faso in 1983 following a series of pronouncements and actions considered unfavorable by the United States. New funding for the Burkina Faso AID program dropped from $11.2 million in 1982 to $300,000 in 1984 and $40,000 in 1985.[6] As part of the cut, AID canceled one of the most successful forestry projects in the Sahel. Burkina officials and donors working in Burkina Faso were disappointed and frustrated at so blatant a disruption of long-term assistance in support of short-term political objectives. The view that the United States is unreliable in its development assistance could undermine the development of effective partnerships not only with Sahelians but with the other donors within the multinational development community.

Mixing political and security considerations with developmental goals creates contradictions that often serve neither. In the Sahel, the relatively low level of security, political, and economic interests in relation to the humanitarian and the exceptionally long-term nature of the challenge make it essential to focus on development to the greatest extent possible. U.S. national interests in the Sahel are best served by effective development programs.

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[6] These figures are for bilateral economic assistance under SDP. Food aid increased during the drought years to $12.4 million in 1984 and $19.6 million in 1985. The Peace Corps remained in Burkina Faso throughout this period. See tables A-6 and A-7 in app. A.

Chapter 7

A Catalog of Other Actors in the Sahel

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A Catalog of Other Actors in the Sahel

IN BRIEF . . .

The United States was a major actor in developing the multinational Club/CILSS framework and has continued to play an active role in the evolution of its strategies. In recent years, AID has made important, major policy revisions in its Sahel program in an attempt to incorporate the lessons learned in the past decade, but some important issues have been left inadequately addressed and AID's strategy is ambiguous in certain areas. AID's effectiveness is constrained by three other factors as well: internal institutional characteristics of AID, the sometimes adversarial nature of AID's relationship with Congress, and the lack of agreement about the role of development assistance in overall U.S. foreign policy.

AID is only one of many actors in the Sahel development effort. An array of African institutions, U.S. agencies other than AID, and various multilateral and bilateral donors have direct and indirect effects on development in the Sahel. Chapter 7 reviews the roles, strengths, and weaknesses of some of these institutions. Highlights of the chapter include:

- Africans and African institutions must play the fundamental role in development in the Sahel, though their strengths must be supplemented and their weaknesses addressed. Donors can complement and enhance these efforts.
- U.S. private voluntary organizations (PVOs) can offer special development skills. PVOs generally can provide small-scale, low-cost, flexible approaches and often operate effectively at the grassroots level. However, the quality of PVO efforts often can be uneven, they may lack technical skills, and they sometimes have limited impact.
- The Peace Corps and the African Development Foundation share many of the strengths and limitations of PVOs. However, both of these organizations have begun new initiatives that incorporate many of the lessons of the past decade.
- U.S. private sector investment currently plays a minor role in the Sahel and its role is likely to remain limited for the short to medium term because of investment risks, language and cultural barriers, competition from Europeans, and policy-related constraints. Policy reform could enhance the climate for U.S. private sector involvement in development in the Sahel, but reform alone would not change the situation substantially.
- At the heart of the Club/CILSS framework is a commitment of donors to work together with the countries of the Sahel in a long-term, coordinated approach to development. Each of the different participants has its own specific agenda and characteristics (both strengths and weaknesses) that affect its ability to contribute effectively in the Sahel strategy. A more concerted attempt is necessary to identify and build on the diversity of the many donors and recipients.

The ongoing processes by which strategies in the Sahel are being changed to reflect the lessons of the past decade are being addressed by thousands of people in hundreds of institutions. The internal characteristics of these institutions and their relationships to society have an effect on how people within the institutions carry out their roles.

By understanding the strengths and weaknesses of these institutions, policymakers can increase the likelihood that their strategies will translate into successful development. Too often, donors focus their efforts on technical and economic analysis and overlook the equally important analysis of institutional, social, and political realities. Any discussion of future strategies for the Sahel would be incomplete without examining several major categories of institutions, both Sahelian and donor, and the obstacles and opportunities their institutional environments provide.

AFRICAN INSTITUTIONS

African institutions are central to the success of development assistance in the Sahel. Yet the weaknesses of African governmental and parastatal institutions have hampered their ability to carry out development programs and this has been one factor in the poor performance of the past decade. A fundamental premise of international assistance, and specifically of the partnership between donors and Sahelians in the Club/CILSS framework, is that the commitment is finite in both time and levels of resources. Assistance is intended to complement the strategies of Sahelians themselves. Thus a long-term commitment to building up the capacity of these institutions is an important element in revised donor strategies.

Sahelian institutions (government or private, regional, national, or local) exhibit a wide range of characteristics that influence their abilities. They face many constraints but observers with long experience in the Sahel believe that many positive changes have taken place since independence. A number of promising institutions and organizations have yet to be integrated into official development strategies, so the future holds continued new potential. The complexity of the constraints facing all institutions and the lack of clear analysis on how to optimize the contribution of each reinforce the need for devising improved ways to coordinate efforts based on a shared set of strategic directions.

Sahelian Government Institutions

A wide range of government institutions are involved in the design and implementation of agricultural and rural development strategies in each Sahelian nation. These include national political organizations, local administrations, technical agencies, and parastatals of many forms. Their specific roles and relative powers vary from country to country. It is difficult to generalize, but these institutions do share some common characteristics that affect their abilities to successfully implement programs and projects.

Lack of Skills and Experience

The majority of Sahelian States are just 25 years old. While Africans had some roles in colonial administrations, they rarely held positions of major responsibility. Between 1952 and 1963 only four university graduates in agriculture were trained in Francophone Africa (47). Although the countries have made impressive advances in education and training, there remains a great need for training opportunities for Africans (4). Many senior agricultural researchers are expatriates. Sahelian educational systems, based on French colonial models, are often lacking or inappropriate. But training provided to Sahelians in institutions outside the Sahel is also often inappropriate.

One difficulty faced by many new institutions, but particularly acute in research, is the necessity of first filling administrative positions. Often the best technically trained Sahelians are not doing research, they are placed in administrative positions for which they have little training or interest. A recent analysis of management in African agricultural projects indicated that bad policies and poor organization seemed to be the key constraints—not lack of skilled personnel. It recommended organizational and management assistance, policy reform, and action-oriented training (65).

The Legacies of Colonial Administration

Significant differences existed between the approaches of different colonial administrations, but overall they were largely based on hierarchical, authoritarian models, more designed for economic, political, and social control than for development. Those models tended to foster farmers' dependence on government personnel and programs. Like their predecessors, Sahelian administrations tend to be highly centralized. Lower officials operating in rural areas have limited decisionmaking authority. And systems of rewards throughout the developing world tend to move the most qualified, motivated people to the capital city while the rural areas get less experienced and less competent personnel. Francophone systems of agricultural research and extension, which emphasized basic research and export crops for better endowed farmers, continue to influence the national agricultural institutions that operate today (56).

Colonial administrative structures were often based on values that differed from traditional Sahelian values, particularly in the areas of individual responsibility and accountability. For Sahelians, *de facto* incentive systems are based more on personal or group loyalty than on performance. The absence of effective sanctions, the acceptance of certain levels of graft, and the pervasiveness of "clientelism" are all manifestations of alternative systems of rule within Sahelian institutions (35).

Lack of Resources

The past 15 years have brought Sahel governments to the point of financial collapse. The causes are multiple. Revenues have declined because of diminishing budget support from the former colonial powers. The drought-reduced export crops and drops in world market prices also contributed to declining revenues. Expenses, meanwhile, have remained high with overstaffed civil services, heavy investment in unproductive infrastructure, growing debt service burdens, and the operating deficits of most parastatals. The lack of priority given to the agricultural sector in the past was exacerbated as budgets tightened in the late 1970s and early 1980s. The result has been paralysis in many rural development operations—especially extension programs—with few resources to replace the deteriorated equipment, little to support recurrent costs such as fuel and supplies, and difficulty paying salaries (4). Projects often could not be sustained after donor funding ended because Sahelian governments could not pay for recurrent costs. Strapped for resources and crippled by poor morale, these institutions cannot perform as expected.

Obstacles From the Outside

A recent General Accounting Office report concluded that the poor capabilities of Sahelian governments to plan and manage development efforts is a significant factor in their slow progress toward economic development (134). The study also found, however, that internal weaknesses are often compounded by the heavy administrative workload imposed by the large number of donors and projects. For instance, last year there were at least 18 village water supply programs, with as many donors, operating in Mali, each with different equipment and different approaches to training and recurrent costs (57).

Opportunities

Some experts feel that the management performance of Sahelians has been relatively good, considering their institutional weaknesses and the many responsibilities involved in managing nearly $15 billion in development assistance over the past decade. Sahelian institutions did much better helping identify needs and delivering emergency food supplies during the 1984 to 1985 food emergency than they had during 1972 to 1973, evidence of the growth of their administrative capacity. Thus it appears that Sahelian institutions will be able to be increasingly effective in the future.

Despite these problems, several trends provide opportunities to increase the effectiveness of Sahelian institutions and increase their capacity to implement development strategies. As the number of university-educated Africans increases, more Sahelian staff will be available to take administrative positions in government and parastatal institutions. Also, staff who have accumulated valuable experience working on past donor-supported projects are increasing. These more skilled staff will help the institutions become more effective partners in development activities.

A new generation of Africans, more highly educated than their predecessors, is coming to power in both political and administrative realms. These young leaders are dynamic, pragmatic, and sophisticated in dealing with rural development issues. Additional positive trends that might help increase the effectiveness of Sahelian institutions include: relative political stability (with the exception of Chad); the growth of democratic institutions (political parties, labor unions, and legal systems in various countries); increasing national identity and overall decrease in ethnic and geographical divisions; growing acceptance by Sahelian leaders of the necessity of policy reform and their initial success in implementing politically risky austerity programs.

Nongovernmental Sahelian Institutions

Nongovernmental institutions in the Sahel have great potential to play key roles in the development and implementation of future strategies for agricultural and rural development. Extremely diverse, nongovernmental institutions, including formal and informal ones, village level and national bodies, often have more legitimacy with farmers and herders than government institutions. Their direct grassroots associations put them in a strong position to facilitate local participation and tap the benefits of traditional knowledge and agricultural systems.

At the same time, however, many of these institutions display the same managerial, technical, and organizational problems as public sector institutions. Their relatively greater effectiveness results largely because they are small and insulated from major development programs and projects. However, this presents one important drawback: because these institutions are small and generally lack national impact, increased support will likely have only limited effects. It is also expensive and complex to use such diverse, widely dispersed institutions.

Photo credit: U.S. Agency for International Development

Small stone dikes can trap water, halt soil erosion, and increase crop production. AID supports this work in Niger. In Burkina Faso, an indigenous PVO works with the regional government and a British PVO to help farmers improve the same technology and to share it with farmers in other regions of Burkina Faso and several other countries.

Nongovernmental groups must be considered within their political and economic context. Giving greater roles to alternative local nongovernmental groups can cause conflicts with groups currently holding economic and political power. A greater understanding of the dynamics of each of these groups and of the context in which they operate is necessary to determine their potential role in the implementation of future development strategies. While the diversity of nongovernmental groups makes generalizations difficult, it is useful to consider the merits of four basic types of institutions: the traditional hierarchies, the indigenous community self-help groups, African private voluntary organizations (PVOs), and the African private sector.

Traditional Power Structures

The colonial and postcolonial experiences of the Sahelian nations have reduced the importance of many precolonial social and political structures, but some remain important in modified forms (e.g., the traditional chieftaincies), and others has been enhanced through links to the postindependence state (e.g., the Muslim Brotherhoods of Senegal). In the past, these structures have not been major actors in donor-sponsored agricultural development programs in the Sahel. But they have a potential role to play because they have influence in rural areas and an ability to mobilize people around such issues as protection of the environment and controlled grazing on communal pasture (86). Additionally, such structures can provide improved access to traditional knowledge systems.

These potential benefits, however, must be measured against some risks. Many experts see these traditional hierarchies as inegalitarian and working with them could exacerbate existing inequalities (60). The new government of Burkina Faso, for example, is moving to limit the power of the traditional chiefs. Nonetheless, the potential seems to justify more consideration of some traditional groups; one of the lessons learned in the past decade is that it is important to build on existing strengths, including local leadership structures and incentive systems. In the Diré zone of Mali, for instance, a Taureg Deputy has used his traditional position to settle pastoral refugees devastated by drought and introduced mixed sedentary farming and livestock production.

Community Self-Help Groups

Community groups have long been major recipients for assistance from international private voluntary organizations. Whether defined along family lineage, political, village, male/female, age group, or ethnic lines, forms of communal groupings exist in most Sahelian countries. Many of these groups were formed because of high labor requirements under traditional production systems or the need to mobilize resources at times of disaster or for ceremonial obligations. Their forms and methods have evolved and multiplied with changes in village economies and social systems. For example, groups have expanded the use of collective fields and communal gardens thus increasing the output of the available land and providing more income. To reduce individual risk and cash outlays, self-help groups often share tractors, plows, wells, and other sizable investments.

Community groups have had a much smaller place in most direct official bilateral or multilateral aid programs. To an extent, this is because it is difficult and costly for major donors such as the Agency for International Development (AID) to develop and implement programs at the village level. Another reason, however, has been that Sahelian governments have been unwilling to support such direct approaches, often seeing such community groups as threats to their centralized administrations. Official donor efforts to increase cooperation or incorporate these groups into larger rural development programs have met with varying degrees of success. However, the failure of many past agricultural development activities and the search for alternatives focused on participation have increased interest in informal village-level institutions and have resulted in a loosening of controls on village-level groups in several countries.

Despite their potential, however, problems have arisen in the relationship between community groups and donors. Generally donors lack effective programming methods to work with community groups. Donors sometimes actually compete to fund projects and hastily organized village groups appear with no other *raison d'etre* than to receive such funding. Sudden influxes of funds and supplies often have undermined the strengths of existing groups, encouraged internal dissension, reduced independence, and substituted a "welfare mentality" for their original self-help orientation.

Sahelian Private Voluntary Organizations

Sahelian PVOs have proliferated recently. Different from community groups in their origins and larger in scope, most are organized on religious, ethnic, or geographical lines. The majority were formed during the past decade and suffer from the same lack of management and technical skills as their government counterparts. Because they have a potential ability to mobilize important constituencies, they have come into conflict with centralized bureaucracies and political groups.

Nonetheless, African PVOs are expanding their role as effective intermediaries between external donors and community groups. In several countries (Senegal, Mali, Niger, and Burkina Faso) they have formed into loose coordinating federations to share information, and eventually, resources. Often governments and externally based PVOs have encouraged and supported this move. Despite their growing strength and potential, the success of many such groups is based on the dynamism or skills of one or a few individuals. Their impact is often as limited as that of more traditional community groups and designing programs to support them is equally difficult. In several cases, their initiative and management capacity has been overwhelmed by well-meaning donors trying to do too much too fast. Yet their potential to mobilize people and resources at the village level, linking them with resources from the outside, is an important strength to consider in designing an overall assistance effort.

The African Private Sector

A major change in donors' development approaches over the past 5 years has been a new emphasis on the role of the African private sector. In policy dialog, donors such as the World Bank and AID are encouraging Sahelian governments to remove restrictions on their indigenous private sector and let it handle some functions and services currently provided by government agencies.

The Sahel private sector has shown vibrancy, creativity, and success even under government restriction (84). One example is the rapid development of small-scale private cereal milling operations over the past 5 years. Many experts, however, see actions to increase the capacities of the private sector (e.g., training, credit programs, and careful subsidies) as being as important as removing restrictions.

Others, however, question how far and how fast the private sector will be able to respond (6) or even whether data are available to make such an analysis (45). Private sector development is uneven among Sahelian States, being best developed in Senegal. Government controls have produced a private sector profile where the majority of firms are very small. The relatively few larger firms often owe their position to State support rather than to higher efficiency.

The private sector is being encouraged to replace many parastatals, but not all the parastatals are equally inefficient. Many of the public sector functions that donors are encouraging Sahelian governments to give to the private sector involve activities that, due to high risk, geographical isolation, low profitability, or high initial investment, are beyond the financial or management capabilities of existing firms. Others see the private sector as unlikely to provide even the minimal levels of subsidies essential to encourage farmers to adopt intensified practices. Finally, some experts point to the lack of success of past small business development projects as evidence of the contradiction inherent in asking relatively inefficient public sector organizations (be they Sahelian or donor) to increase the efficiency of the private sector.

Finally, many small farmers and herders have a long history of distrust of private grain merchants and traders—who because of their virtual monopoly would purchase agricultural products at low prices following harvest, and then resell them to the farmers at far higher prices in later months. Similarly, the consumer goods these private traders provided in rural areas were highly priced. The imperfect market conditions that fostered these abuses continue. From the farmers' point of view, the government parastatals provided at least some hope of protection from unscrupulous private entrepreneurs.

U.S. ORGANIZATIONS

In addition to the Agency for International Development (AID), many other U.S. organizations, public and private, are active in the Sahel. These include private voluntary organizations (PVOs), the Peace Corps, the African Development Foundation, private businesses, and other agencies of the U.S. Government. Each has different objectives, activities, and organizational strengths and weaknesses. Coordination among the various public agencies could be enhanced by careful analysis of how each institution can most effectively join in a comprehensive, better coordinated development strategy. While the autonomy of private agencies and businesses is important, improved coordination with the directions agreed on in the Club/CILSS process would bring many benefits. Specific analysis of the key U.S. institutions operating in the Sahel can help facilitate the development and implementation of more effective Sahel strategies.

Table 7-1.—U.S. Private Voluntary Organizations (PVOs) in the Sahel

Country	Number of PVOs	Number of projects
Burkina Faso	19	82
Cape Verde	3	12
Chad	11	30
The Gambia	18	39
Mali	22	84
Mauritania	11	34
Niger	13	46
Senegal	24	100

SOURCE: InterACTION, *Diversity in Development: U.S. Voluntary Assistance to Africa Summary of Findings* (New York: InterACTION-American Council for Voluntary International Action, 1985).

U.S. Private Voluntary Organizations

PVOs are nonprofit organizations established by private citizens with a philanthropic purpose and they act to complement official assistance working in the Sahel. InterACTION, an association of over 100 U.S. PVOs working in international development, rehabilitation, and relief, commissioned a survey of 150 U.S. PVOs whose efforts account for 80 to 90 percent of PVO aid to Africa and found that these U.S. PVOs participated in many projects of varying sizes in the Sahel (table 7-1).

InterACTION estimates that 10 to 15 percent of the $460 to $600 million spent in Africa by U.S. PVOs in 1984 was spent in the Sahelian countries (144). Initial estimates are that spending doubled in 1985 as a result of an outpouring for famine relief.

PVOs show a diversity of goals, activities, funding sources, and memberships. They collaborate in a number of major coalitions: PACT (Private Agencies Collaborating Together; 5 of the 19 member agencies of this international consortium are based in Latin America and Africa), CODEL (Coordination in Development, an ecumenical consortium of 40 religious-based PVOs), and InterACTION. Some work only in Africa, like Africare; others, such as CARE, Save the Children, and Oxfam, have European affiliates.

In 1984, PVO projects in Africa were divided among the following sectors: community development (23 percent); refugee, famine, and disaster relief (14 percent); food production and agricultural development (12 percent); medicine and public health (12 percent); family planning and population (8 percent); education (7 percent); water (6 percent); small enterprises and income generation (4 percent); construction (4 percent); nutrition (3 percent); social welfare (3 percent); and environment (1 percent) (72).

The amount of public funding of PVOs increased after 1981 when the U.S. Congress directed the Agency for International Development to make available at least 12 and up to 16 percent of AID's development and disaster assistance funding to PVOs. The response to the recent drought increased the amount of both public and private funds available to U.S. PVOs working in the Sahel. In 1985, Congress increased the PVO earmark from 12 to 13½ percent for fiscal years 1986 to 1989. Congress defined PVOs as organizations obtaining at least 20 percent of their annual funding for international programs from nongovernmental sources (131). However, funding available to PVOs through AID's Sahel Development Program (SDP) account has declined from a high of nearly $25 million in fiscal 1985 to less than $12 million in fiscal year 1986 (71).

In 1984, 60 percent ($270 million) of all U.S. aid to Africa from PVOs was funded by the U.S. Government. Nearly half of PVO aid to Africa ($220 million) was food aid, including the costs of ocean freight for the Public Law-480 Food for Peace Program. About 10 percent of PVO aid ($50 million) was derived from U.S. AID grants and contracts. Private cash contributions amounted to about 20 percent ($100 million) of the total. The private share was 30 percent of the total when in-kind gifts (e.g., medicines) and services are included (72). The largest two PVOs, Catholic Relief Services (CRS) and CARE, together provided two-thirds of all PVO aid to Africa. They received 70 to 80 percent of their resources from the U.S. Government, mostly Public Law-480 commodities and transportation costs. These ratios of government to private funding for PVOs in Africa are probably similar to the ratios applicable in the Sahel, but specific breakdowns are not available.

The increase in public funding available to U.S. PVOs has created dilemmas for their members and African counterparts (108). PVOs desire to maintain independence in their African activities whether or not they accept public funding. Some PVOs, for example, apply for AID grants to support projects designed by themselves. Yet, increasingly, they also apply for contracts to do AID-designed work. Some fear that the latter activities will either distort or conflict with their other efforts. Other PVOs, for example, the American Friends Service Committee and Oxfam-America, have elected not to accept any U.S. Government funding because they are reluctant to depend on the U.S. Government financially for a variety of philosophical and other reasons.

Views differ regarding the efficacy of current AID support of PVO activity in the Sahel. Several AID staff questioned the policy of earmarking a percentage of funds specifically for PVOs because this requirement contributes to AID's inflexibility. Also, PVOs do not always have the best record or expertise in the priority areas. PVOs frequently complain about the length of time required for AID funding approval and about procurement restrictions (tied aid) that require them to purchase U.S. equipment and services, often to the detriment of the project.

While most PVOs now agree that their primary goal should be long-term development, many of their resources continue to be dedicated to short-term relief and distributing food aid. Even those PVOs that normally do not distribute food, like the Mennonite Central Committee and Church World Service, did so during the 1984 drought. This demonstrated one of the strengths of the PVOs: their ability to move quickly to implement relief programs when the need arises. CRS and CARE, the largest distributors of Public Law-480 commodities, distinguish between distribution of emergency food aid for relief and their development programs using Food for Work, but they stress the complementarity of the two programs (79).

With the return of rain to the Sahel in 1985, PVOs are reassessing their immediate and long-term work. A large number are moving from relief to rehabilitation and development. Many are using Food for Work, private funds, or a combination of private and public funds (Africare) to support projects to increase agricultural production and restore the environment, such as antierosion projects or small-scale irrigation projects.

Some PVOs question the role of food aid in development, especially since late 1985 when U.S. surplus commodities competed with locally produced grain for storage and were said to depress the price of local grain. In response, PVOs such as Church World Service in Senegal and Freres des Hommes in Paris are planning ways to develop "triangular food aid" where they purchase African-produced food crops, store them, and sell them in food-deficit areas. This provides relief but, at the same time, increases market incentives for small farmers. Other PVOs are seeking ways to improve grain storage and reduce price fluctuations. For example, several PVOs have established grain banks in villages where they help local communities purchase locally produced grains at harvest and store them in the village for later resale below rising market prices before the next harvest to bypass private grain merchants. However, the success of these efforts often depends on government cereal policies.

PVO Opportunities and Limitations

Alternative Approaches to Development.—Many of the unrealistic expectations and mistakes in the Sahel were common to programs of both official and private agencies working with small farmers. In contrast to official assistance, PVO programs are said to be more participatory, people-to-people rather than government-to-government. In theory, most stress bottom-up rather than top-down development, and reach the poorest of the poor. Without the many political constraints of official aid, PVOs can often work in countries or areas where official bilateral aid programs cannot, and use more experimental approaches. However, there is a need for careful case-by-case evaluation of the strengths and weaknesses of PVOs so they can be more effective in the future (113). While this evaluation is only beginning to be conducted (72,120), most observers agree that the PVOs have benefited many poor people, and that they often have more freedom than official groups to attempt alternative approaches to development.

Small Scale.—PVOs have the advantage of being able to work with smaller projects, many on a village level. In addition, they are able to distribute relatively small amounts of money and test pilot approaches. Most provide some technical assistance and funding for materials, but require that the village supply labor. While some PVOs limit the scale of their projects because of limited resources, others receive large sums from public or private sources and reallocate them to several projects or an activity carried out in a number of locations. One good example of this is the series of small-scale irrigation projects carried out by Africare.

Many PVOs have learned that they can work effectively at a level above the village level, and in turn increase their impact in the villages. Some groups, like the Overseas Education Fund in Senegal and the Unitarian Universalist Service Committee in Burkina Faso, have worked with national-level Sahelian PVOs. Thus PVOs also have an ability to strengthen local, regional, and national institutions—and also can contribute to implementation of SDP strategies on these levels.

Direct Access to Farmers and the Rural Poor.—Most PVOs prefer to work at the grassroots level with local indigenous organizations. Many stress village-level agricultural and rural development programs. While PVO headquarters are usually in the capital city, field staff either travel to the villages or live in smaller towns. Some PVOs employ African staff who are from ethnic groups or rural areas where projects are implemented. Some PVOs have staff members who have worked in the Sahel for a number of years, and speak fluent French and an African language. This experience and ability to use staff outside the capital city helps PVOs overcome the common urban bias of many assistance organizations. However, not all PVO staff are equally skilled. Many need to give more emphasis to less visible and well-off groups. Nevertheless, direct access to farmers gives PVOs a good opportunity to obtain accurate data so policymakers can be better able to judge the impact of their decisions.

Lower Costs.—U.S. PVOs are usually able to implement projects at lower costs than other U.S. groups for a number of reasons: 1) the pay scales of their U.S. staff are lower than those of other U.S. officials, consultants, or university personnel; 2) they often implement projects using volunteer labor; and 3) their administrative costs generally are lower. U.S. PVO activities, however, may have higher costs than those of African organizations, especially when tied aid requirements or relatively costly U.S. personnel are involved.

Flexibility.—PVOs often are not as bureaucratic as official assistance agencies. They typically have simpler, less centralized decisionmaking processes and lack many political constraints. Often the country director has authority to implement projects and flexibility in managing them. PVOs have been praised for their altruism and openminded acceptance of African realities. However, many PVOs complain about constraints connected with projects funded by AID. Specifically, PVOs feel that the need to design projects in detail long before they are funded and the bureaucratic difficulty of changing them midstream, as well as the length of time required to approve and actually fund projects, all act to hinder their flexibility and effectiveness.

African Institution-Building.—Most U.S. PVOs, like official donors, believe in acting in partnership with Africans. But since U.S. PVOs often have access to human, material, and financial resources that Sahelians do not, it can be difficult to establish a mutual relationship. Thus PVOs are not always as effective as they could be in helping build institutional capabilities in the Sahel.

Most PVOs are oriented to work with nongovernmental organizations and do not provide resources to governmental entities. In an effort to run programs efficiently, PVOs sometimes bypass public officials who they perceive as ineffective or they set up parallel structures to public programs, thus undermining the effectiveness of those programs. African public officials have complained about the lack of communication and coordination with PVOs, especially when the PVOs were setting up village organizations or projects that competed with public agencies, indigenous institutions, or other PVOs. This competition reduces the effectiveness of local and regional institution-building.

While U.S. PVOs often hire Africans as staff, they infrequently work as true partners with indigenous private organizations. This may be due to the fact that the local PVOs are not structured the way U.S. PVOs are structured: the indigenous PVO may be working with only one ethnic group, or in certain areas, or it may not have a full-time staff or compatible financial accounting system. There are, of course, cases where PVOs have worked successfully with local organizations. For example, in Burkina Faso, the Centre d'Etudes Economique et Sociales de l'Afrique Occidental provides training for village leaders working with Africare and CRS projects. In several Sahelian countries U.S. PVOs belong to coalitions of international and indigenous PVOs. Yet there are difficult issues of project control, funding constraints, and operating styles to be resolved. The relationship becomes especially delicate when a U.S. PVO channels U.S. AID funds to a local PVO. Several observers mentioned the harmful effect of too much money being made available to local PVOs: the natural growth of these groups was being distorted, new national PVOs were springing up overnight and volunteer-based groups were pressured to hire staff.

Finally, the desire to have measurable results to show its members or financial supporters can create a situation where the staff of the U.S. PVO do much of the work themselves, rather than supporting the efforts of the local group to carry out the project. This pressure to produce quantifiable results often constrains PVO effectiveness in building local capacity. In the African view, the major role of the outside PVOs in Africa is to support and build the capacity of the African PVOs (70).

Impact of Projects.—One commonly voiced criticism of the work of PVOs is that the small scale of their activities limits their overall impact. PVOs are aware that there has been little evaluation of the impact of their projects; they acknowledge that it is difficult to judge the cumulative impact of their work or replicate successes (120). They note that too often PVO projects do not have strong marketing or economic development components nor do they take into account recurrent costs, which limit sustainability. Lack of local involvement in the design and implementation of projects and the lack of local "ownership" of the project are key constraints to sustained impact.

To increase their impact, some PVOs are learning to plan strategically and to work in coalitions. A current topic of discussion in these groups is the role for PVOs in policy reform. While there is little disagreement that macroeconomic conditions and policies can cause the best-run projects to fail, most PVOs feel that the policies and programs of African governments and overall political conditions favorable to development are needs that the U.S. PVOs cannot address directly (72). Others feel that PVOs with local experience and credibility, especially those with successful economic development records, are in a good position to provide data and advocate policy changes that would benefit the poor. In some cases, PVOs are engaging in policy reform on a local level. For example, a windbreak project sponsored by CARE in Niger resulted in local resolution of tree tenure and land management reforms, areas not yet included on AID's policy reform agenda (120). Some authorities note that the long-term effects of empowering local organizations will eventually result in significant social, political, and economic change. The view of African PVOs is that a principal role of outside PVOs is to seek changes in the policies of their own countries conducive to development in Africa (70).

Lack of Technical Skills.—Traditionally, PVO staffs have not had a high level of technical expertise. Not surprisingly, PVOs have made the same technical mistakes as the official programs regarding food crops and livestock in the Sahel. Some see their role as one of diffusion of technology rather than development since their strength is at the grassroots level. However, it is now generally accepted that promoting the adoption of new agricultural technologies takes a high degree of technical skill as well as cultural sensitivity and socioeconomic understanding. In the past, this lack of technical skills has created problems. For instance, the lack of a research orientation by PVO staff implementing a highly successful project in Burkina Faso (reclaiming eroded land) make it less likely that others can duplicate the project. A recent AID study of PVO efforts worldwide concluded that the lack of resources to collect baseline data before and measure effectiveness after implementation, together with the absence of mechanisms for sharing lessons learned from successes and failures, were key PVO weaknesses (120).

Concern also exists that the distinction between PVOs and for-profit consulting firms is becoming blurred by the increased government funding available to the PVOs. For example, the AID contract process encourages PVOs to hire more technically qualified people but some are now sending people without the experience, language skills, and local understanding that normally are PVO strengths.

Many of the characteristic strengths of the PVOs can be used to increase their effectiveness in achieving some of the key objectives of Sahelian development. Their limitations can be compensated for with careful, coordinated planning that includes an honest analysis of their specific strengths and weaknesses in a country or sector. However, to better achieve this there is a need for documentation and careful evaluation of PVOs' successes and failures in the Sahel. AID and PVOs should study their past performance in the Sahel—e.g., cost of tied aid requirements, funding delays, lack of logistical support, problems caused by AID's project design and monitoring requirements—and use this information to improve AID's ability to work more effectively with PVOs.

The Peace Corps

The Peace Corps has volunteers and programs in six of the nine countries of the Sahel

(Chad, Cape Verde, and Guinea Bissau are excluded). The goals of the Peace Corps—to foster development on a people-to-people basis, promote understanding of the United States in developing countries, and American understanding of developing country societies—are achieved through a variety of programs. The numbers of volunteers and the major programs in each of the Sahelian countries in 1985 are shown in table 7-2.

A number of the projects that volunteers are engaged in relate directly to low-resource agriculture including work in agricultural research, young farmer education, agricultural extension, agroforestry and reforestation, wood stoves, animal husbandry and health, agricultural credit and marketing, wells, small-scale irrigation and vegetable gardening, wildlife, game ranching, range management, seed production, rice production, fisheries, and beekeeping (95).

In addition, many staff within AID, the multilateral institutions, and the PVOs working in the Sahel are former Peace Corps volunteers. Their knowledge of the local culture, language, and country condition was an important consideration in their selection and gives them a unique perspective on their new tasks. In 1982, more than 10 percent of the AID work force were former Peace Corps volunteers (124).

Peace Corps Opportunities and Limitations

The Peace Corps shares some of the same institutional opportunities that PVOs enjoy: small-scale projects, direct access to the farmers and rural poor, and flexibility in programming. As an independent government agency with a worldwide program, the Peace Corps has less flexibility and is not as free of political constraints as many of the PVOs. However, the Peace Corps' funding base is more secure and predictable than many PVOs.

Table 7-2.—The Peace Corps in the Sahel

Country	Number of volunteers	Major Peace Corps program areas
Burkina Faso	75	Teaching English, agricultural education, reforestation
The Gambia	55	Health, nutrition, forestry
Mali	80	Woodstoves, water, teaching English
Mauritania	48	Agricultural extension, health education
Niger	125	Education, nutrition, forestry, health
Senegal	95	Rural development, forestry, health
Total	478	

SOURCE: Peace Corps, *Africa Region Briefing Book* (Washington, DC: April 1985).

Photo credit: U.S. Peace Corps

This Peace Corps volunteer from Delaware works on village gardening, nutrition education, and fuel-efficient stoves in Mauritania.

Begun in 1984, a Peace Corps program called the Africa Food Systems Initiative was set up to be "a long-term (10 year) collaborative effort assisting up to 12 African nations in their struggle to reverse the decline in per capita food production and attain self-sustaining food systems" (96). Two of the four pilot countries involved are in the Sahel: Mali and Niger. Building on past Peace Corps experience, teams of volunteers will work in activities designed to resolve problems of preproduction (land preparation, water supply, inputs, agroforestry, animal power, and implements); production (introduction of improved varieties and agronomic practices, fisheries, husbandry, and gardening); and postproduction (processing, preservation, storage, marketing, and distribution). Most work will be carried out on the village level.

The Africa Food Systems Initiative builds on the trend to recruit more technically qualified volunteers, while maintaining the traditional strength of the Peace Corps on the community, grassroots level. Its implementation will affect recruitment, training, and programming.

The Africa Food Systems Initiative also builds on a growing collaboration between the Peace Corps and PVOs and AID. The collaboration with PVOs has taken many forms: volunteers assist PVO projects in their free time and have been assigned to work on PVO projects. For example, a fisheries Peace Corps volunteer helped Africare establish a co-op in Niger. Africare, Partnership for Productivity, and Aprovecho Institute have used Peace Corps volunteers to carry out collaborative projects in the Sahel (124). PVOs have provided materials and funding in response to volunteer requests. There are formal and informal systems of information-sharing between the Peace Corps and PVOs. Sometimes AID funding of PVOs is also used by the volunteers working on their projects.

Since the mid-1970s, increasing numbers of Peace Corps volunteers have been assigned to work directly with AID projects. Collaboration of the Peace Corps with AID has its risks as well as benefits. The risk is that local people might come to identify the Peace Corps with an agency whose mission is more directly linked to U.S. foreign policy. The benefits are increased financial and technical resources available to the Peace Corps and grassroots outreach for AID. AID has developed two "fast funding" mechanisms for community-level development projects which are being used by volunteers in the Sahel: the Ambassador's Self Help Fund ($50,000 to $100,000 depending on the country and year for commodity procurement for self-help projects) and the Small Project Assistance Program (a $40,000 fund in each country to support community self-help efforts identified with the assistance of volunteers).

Institutionally, the Peace Corps shares several limitations with PVOs—those dealing with overall impact and technical personnel. Institutional communication and coordination problems with the African government entities are less than those encountered by PVOs. Because of the short-term nature of the volunteer assignments, and emphasis on local community organization, local capacity-building is enhanced by Peace Corps programming. However, because volunteers stay for short tours of duty (normally 2 years) Peace Corps programming has the built-in limitation of being short term and lacking continuity. This high turnover also helps account for the lack of an institutional memory and written record of over 20 years of Peace Corps village experience in the Sahel. Such a documentation of the accomplishments and lessons learned would provide valuable information for those planning programs and activities in the Sahel.

The Peace Corps does not have a Sahel-specific development strategy or regional administrative structure for the Sahel. The Peace Corps staff in Washington have responsibility for a mix of Sahelian and West African coastal nations; the Country Directors meet on a much larger regional basis. This administrative structure prevents the Peace Corps from developing coordinated subregional programming and training strategies that could better use scarce resources and extend the impact of the Peace Corps effort. Despite these limitations, the Peace Corps has the potential to continue to provide an important contribution to development in the Sahel according to the strategy objectives described earlier.

African Development Foundation

The African Development Foundation (ADF) is designed to support local self-help development efforts. Congress authorized the establishment of the foundation in 1980 to fill the gap between official U.S. assistance programs and the needs at the grassroots level by delivering assistance directly to people in rural communities and urban slums. Wholly supported by public funds, the ADF funds small projects designed, implemented, managed, and evaluated by Africans, who are required to include the poor in this process to the maximum extent possible.

The foundation began operations in fiscal year 1984. When two officials resigned in the first year, Congress requested the General Accounting Office to evaluate ADF's capacity to carry out its mandate. There was congressional pressure to fund quickly and develop a number of policies and strategies before full-time staff was hired. The congressional awarding of "no-year" money was critical for the early survival and growth of the ADF. ADF now seems to be on its feet (135) with core staff in place and funding proceeding according to its 5-year plan.

In the first 12 months of operation slightly over $1 million was awarded to 13 projects in 7 African countries. While both grants, loans, and loan guarantees are permitted, only grants have been made. Grants have ranged in size from $700 to $250,000, with an average size of $70,000. The foundation is active in 14 countries in Africa, and has funded 70 projects. Eleven projects have been funded in the Sahel in Mali and Niger. The foundation will begin work in Senegal and Mauritania in 1986. A review of the projects funded in the Sahel shows that they take an integrated, local approach: several are helping transhument herders make the transition to sedentary herding and include complementary activities such as vegetable gardening or poultry raising; others involve integrated village development projects with mixed livestock and food production, irrigation, and other social services; and three are women's income-generating cooperatives.

ADF Opportunities and Limitations

ADF has some of the same institutional opportunities as the PVOs: smallness of scale, direct access to the poor, lower costs, and flexibility (1). It also shares with the PVOs and Peace Corps the limitations regarding smallness of scale and impact, and these are accentuated because it is so new.

However, the approach to development taken by ADF differs from that taken most often by both the other official programs and PVOs because it provides direct support to local community groups. While ADF does have funding criteria, its congressional mandate enables it to support development strategies and programs designed by Africans—rather than preselecting priorities and designing strategies and projects with passive participation by Africans. It is based on the assumption that development is essentially an indigenous, self-directed process and that the role of outside assistance is to support it.

In addition, African groups funded by ADF are supported through local African technical assistance, authorized to purchase equipment and supplies on the local market, and are audited by African accounting firms selected by the foundation. In waiving tied aid requirements, Congress' intent was to strengthen African capabilities.

Because it provides direct support to local self-help efforts, often business enterprises, local capacity-building is central to ADF's mandate. Its first priority is to work with village organizations, and its second priority is to work with African intermediary organizations to provide technical assistance to the local groups, thus strengthening both. Several of its funding criteria are also designed to strengthen local capacity: ADF requires that the poor participate in project design, implementation, management, and evaluation, as well as garner benefits from the project; funding is limited to a maximum of 5 years to reduce dependency; and ADF does not fund core salaries to increase the chances of sustainability.

An important limitation on ADF's contribution is its low priority in U.S. official development assistance. ADF was appropriated a total of $8.5 million between 1980 and 1985 and an additional $3.87 million in fiscal year 1986 (out of a total of $15 billion for foreign economic and military assistance). However, because of the previous money made available, the Foundation's fiscal year 1985 budget was $4.5 million and the fiscal year 1986 budget is programmed at $6.1 million.

The ADF mandate is clearly consistent with many of the elements of the development approaches needed in the Sahel. However, the degree to which ADF projects actually achieve these objectives, and the wider impact of the projects it supports, have not yet been subject to careful evaluation because funding started so recently.

American Private Investment

A number of donor agencies, including the World Bank, AID, and several European donors, have given increased attention to the role of external private investment in Third World development. Nonetheless, even though there is some U.S. investment in the Sahel, the potential for significant increases is extremely limited for the short to medium term. Tourism offers some potential for increased foreign investment, for example, in Senegal and The Gambia, but the net benefits of tourism to the local economy are reduced by the sector's high demand for scarce foreign exchange—e.g., both to build and maintain the hotels and by negative social effects. The Overseas Private Investment Corporation (OPIC), which offers financing and insurance to U.S. investors to cover exchange of local currency into dollars and losses due to expropriation and war or revolution, has not financed any projects in the Sahel but has insured five investors in the Sahel: four in Senegal and one in Niger. In Senegal OPIC is insuring Mobil's oil refinery, Citibank, and two pharmaceutical projects of Warner-Lambert/Park Davis; in Niger, OPIC is insuring Citibank.

There has also been some activity in Sahelian nations by the Export-Import Bank, which supports U.S. exporters by enabling foreign buyers, including governments, to purchase American goods under various financing mechanisms. However, the Bank does not consider the Sahel as very promising for private investment and has limited its support to providing short-term credit for private sector purchases in several countries.

OPIC and Export-Import Bank-supported projects are the only primary U.S. investments in the Sahel. Most potential investors feel they can make more money elsewhere. Using the same logic as Sahelian farmers who chose not to accept proposed agricultural packages—businessmen feel there is not enough profitability in Sahel investment opportunities to offset the risk.

Beyond the obvious linguistic and cultural obstacles to increased U.S. private investment in the Sahel, most of the major constraints to increased investment in and trade with the Third World identified by American business respondents to a Fowler-McCracken Commission Survey are relevant to the Sahel (82). The following policy-related constraints are of particular significance to U.S. business investors:

- *Complex Investment Codes of the Sahelian Countries*: Based on French models of heavy State intervention, regulation, and control in the private sector, Sahelian investment codes are accompanied by a level of bureaucratic and legal procedure unacceptable to most American investors.
- *Restrictions on Ownership and Repatriation of Profits*: Most Sahelian States require majority local partnerships and/or significant public sector interest in most investment categories and restrict the repatriation of profits.
- *Complex Labor Relations Legislation and Relatively High Wage Rates*: Minimum wage legislation, social security benefits, pension requirements, and the forms and practices of labor relations make labor relatively high-cost for the skill level it represents.
- *Political Instability*: Perceptions of political instability create a major disincentive to foreign investment in the Sahel. Since 1980, the civil war in Chad with Libyan involvement, coups in Mauritania, an attempted take-over in The Gambia, and the anti-capitalist rhetoric of the current government in Burkina Faso have increased these uncertainties.

Despite efforts to alter disincentives, Sahelian and donor governments alike have been unsuccessful in attracting much new investment, or even, in some cases, of retaining past levels. The overall decline of Sahelian economies, both from production shortfalls and donor-encouraged (or imposed) austerity programs, has certainly been a factor in what amounts to a substantial net disinvestment in the area by private capital since 1980. Other more structural constraints limit external private investment and will continue to do so even if the economies improve and policy obstacles are removed. These include:

- *Poor Infrastructure*: The lack of adequate roads, ports, airports, railways, access to inexpensive and reliable water and power limit private opportunities in the Sahel.
- *Lack of Skilled Labor*: General education levels, literacy, and technical skills remain lower in Africa than in almost any developing region. The costs of sending and supporting foreign management and skilled labor are increasingly high.
- *Small Market Size*: The population and size of African States, their poverty, deficiencies of marketing systems, customs differences between States, export restrictions, and costs all cut the market size for African enterprises, limiting efficiencies of scale and eroding potential profitability.
- *Underdeveloped Local Private Sector*: The indigenous private sector in many Sahelian countries is poorly developed and this limits opportunities for collaboration and joint ventures.
- *Lack of Raw Materials or Access to Them*: With few exceptions (phosphate in Senegal, iron in Mauritania and potentially in Senegal, uranium in Niger, and the principle industrial agricultural products: cotton, peanuts), the Sahel has few raw materials of industrial interest on which to build industry. At the same time, port and customs constraints and transportation problems for the land-locked states limits the economic viability of bringing in raw materials from the outside.

Little private capital currently flows into the Sahel and it is offset by outflows repaying past, external, private investment. For the low-income countries of Africa, outlays for repayment of principal of private nonguaranteed loans exceeded funds from new loans by $74.1 million between 1981 and 1984. If interest payments are included in this calculation, African outlays exceeded funds from new loans by $279.8 million for this period (151). Accepting a basic premise of the liberal free-market system, i.e., that capital will flow to the areas of greatest opportunity, private investors see their potential role in Sub-Saharan Africa and particularly the Sahel as more limited than development theoreticians would hope. The basic factors that underlie these perceptions on the part of businessmen are unlikely to change in the short to medium term. Thus, it does not seem that at this time U.S. private business investors are likely to be significant participants in the Sahel.

The many constraints to increased private investment notwithstanding, there are a variety of prospects for economic development within the Sahelian countries, and between them and the coastal States, that donor agencies can support—and perhaps even recruit the assistance of U.S. business in the long term. Some of these opportunities are small scale, building on existing enterprises. The strategy for achieving improved food security includes finding ways of increasing nonfarm incomes of both rural and urban people. Agriculture-related industries can create links with farm-level agriculture production. Certain U.S. PVOs, such as Partners for Productivity and Technoserve, are already involved in this area. Alternative sources of outside private investment may be better suited to these types of activities than are the larger U.S. multinational businesses. Private, church, and corporate foundations are starting alternative investment funds. For example, the Ecumenical Development Cooperative Society and Women's World Banking make loans and equity investments in small-scale economic ventures in Sub-Saharan African nations on concessional terms. Corporate social responsibility groups may be recruited to provide financial or technical support. In the short term, there is a need to collect information on sources of private funding in the United States that could be used by PVOs and others working in the Sahel.

In addition, some people interested in increasing U.S. private investment in developing countries recommend increasing the role of OPIC. Possibilities include restoring funding for direct financing of projects and investment feasibility studies—but targeting them to support the strategies necessary in the Sahel. Both could be helpful in developing long-term business development strategies for investors interested in the Sahel.

Other U.S. Federal Agencies

Coordination problems increase with the number of actors involved, especially when each has a different goal and perspective. While a certain amount of diversity in approach is to be expected among U.S. Government agencies whose work affects the Sahel, agreement on an overall development strategy for the region would help increase the impact and avoid waste of public funds. Improved awareness by each of the actors of the objectives, strategies, and programs of the others could help improve matters. AID, because of its participation in the Club/CILSS process, is in a particularly good position to take more active leadership in trying to improve coordination among the U.S. Government agencies with programs affecting the Sahel.

Although AID and the State Department play the major policy roles in development assistance to the Sahel, other Federal agencies make important contributions. The U.S. Department of Agriculture, particularly because of its role in influencing policy for large amounts of food aid, is key among the other U.S. Federal agencies. In addition to its departments with jurisdiction over food aid, other USDA departments and programs which have valuable contributions to make to Sahelian development include: the Office for International Cooperation and Development in training and technical assistance (this office managed the Sahel Manpower Development Program); the agricultural research programs supported by the Agricultural Research Service, the Cooperative State Research Service, and the Forest Service; and the Economic Research Services.

The National Oceanic and Atmospheric Administration of the Department of Commerce has used its expertise in climate assessment in support of Sahelian development. Through such techniques as satellite imagery and data collection from Sahelian countries, NOAA compiles rainfall and crop production data used in a Famine Early Warning System run in conjunction with AID. However, present techniques better estimate crop productivity per acre than total production. NOAA also supports the Sahelian Regional Center for Agrometeorology and Applied Hydrology (AGHRYMET) located in Niger.

Because of its role in relation to the International Monetary Fund and World Bank, the Treasury Department is also an important U.S. actor. Monetary policies and debt issues of Sahelian countries in particular are affected by its actions. OPIC has already been mentioned, as has been the Export-Import Bank. In addition, the Office of Management and Budget, because of its key role in allocation of public funds for all other agencies, is another key actor.

Insofar as AID funds the activities of various private organizations, including U.S. universities and private firms, such as consulting firms, it clearly has a role in coordinating

Photo credit: U.S. Agency for International Development

NOAA, along with AID, supports the Sahelian Regional Center for Agrometeorology and Applied Hydrology near Niamey, Niger.

their individual efforts. For example, through the Board for International Food and Agricultural Development, AID supports agricultural research efforts of U.S. universities. Especially important are those of the Collaborative Research Support Programs (CRSPs) in which U.S. universities work together with research institutions in developing countries. The CRSPs active in the Sahel are: sorghum/millet, peanut, bean/cowpea, and tropical soils. (See table 7-3.)

This list is illustrative, not exhaustive. If AID is to take a leadership role in improving coordination among U.S. agencies active in the Sahel, one of the first steps would be a careful identification of the various U.S. programs that either currently do—or could have—bearing on more effective achievement of the strategic directions described earlier. Coordination could occur both in-country and in Washington.

Table 7-3.—Collaborative Research Support Programs (CRSPs) Active in the Sahel

CRSP	Countries	U.S. universities
Sorghum/millet	Burkina Faso The Gambia Mali Niger Senegal	Kansas State University, Purdue University, and Texas A&M
Peanut	Burkina Faso Niger Senegal	University of Georgia and Texas A&M
Bean/cowpea	Senegal	University of California at Riverside, University of California at Davis, and University of Arizona
Tropical soils	Niger	Texas A&M

SOURCE: U.S. Agency for International Development, Board for International Food and Agricultural Development, May 1986.

MULTILATERAL AND BILATERAL DONORS

In addition to understanding Sahelian institutions, it is important to examine the Sahel's partners in development—the international donors. The aftermath of the Sahelian drought of 1968 to 1973 witnessed not only more than a trebling in donor assistance but also an unprecedented proliferation of the number of external organizations involved. They are bilateral and multilateral, governmental and private; they provide technical assistance, loans, grants, training, commodities, or merely good will. The diversity of these organizations is great—from their goals and objectives, to their strategies and methods of operation. Given their great investment in the Sahel and the influence they collectively have on development activities, the characteristics of these donor organizations have fundamental implications for the implementation of Sahel development strategies.

In 1984, total official development assistance (ODA) committed to the CILSS countries was $1.9 billion: about 69 percent of the assistance was through bilateral channels and 31 percent through multilateral agencies (32). After steadily rising through the 1970s, total ODA peaked in 1981, declined through 1983, and rose nearly to its 1981 level in 1984 because of increased levels of emergency food aid (26). The United States contributed 9 percent of the total ODA from 1975 to 1983;[1] however, the U.S. commitment of $274 million in 1984 was 14 percent of the total. (Club statistics include all U.S. aid, not just development assistance under the SDP.) Including its contributions to the multilateral organizations, the United States is an important but not predominant donor in the Sahel. (See table 7-4 and app. A tables A-1 through A-4.)

At the heart of the Club/CILSS framework is the commitment of the donors to work together with the CILSS countries in a coordinated approach to achieve Sahelian development. While the various donors have a diversity of strengths and resources, some of them are more important in relation to the regional strategies than others. The number and diversity of actors increases coordination problems and the potential for duplication and conflicting priorities. However, the diversity of strengths also en-

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[1] Data regarding ODA in this section is from Club du Sahel/CILSS, *Official Development Assistance to CILSS Member Countries in 1983* (Paris: OECD, 1985) unless otherwise noted.

Table 7-4.—Top 10 Donors to Sahelian Member Countries, 1975-83 (U.S. dollars)

Donor	Millions of U.S. dollars	Percent of total aid
France	2,247	18
European Economic Community	1,540	13
West Germany	1,067	9
United States	1,041	9
World Bank/International Development Association	998	8
Saudi Arabia	792	6
United Nations	609	5
Canada	554	5
The Netherlands	439	4
African Development Bank	411	3
Total of top 10 donors	9,698	80%[a]
Total commitments, 1975-83	12,201	

NOTE: In 1984, $1.92 billion was the total committed.

[a] Of total Official Development Assistance.

SOURCE: Club du Sahel/CILSS, *Official Development Assistance to CILSS Member Countries in 1983* (Paris: Organization for Economic Co-operation and Development 1985).

hances the ability to deal effectively with the various challenges of Sahelian development (the interrelated technical, policy, and institutional issues), at various levels (farm, village, national, and regional levels).

The different multilateral and bilateral donors active in the Sahel have different institutional strengths and weaknesses arising from different purposes, perspectives, and histories. There are important differences in size of programs, scale of programs and projects, sectors within which each operates, types of assistance provided, and approaches to development.

Size of Programs and Trends

Decisions about the total resources to commit to recipient countries are made independently by each donor as are many other decisions regarding types of assistance and approaches to development.

The largest bilateral donors from 1975 to 1983 were France, the Federal Republic of Germany, the United States, and Saudi Arabia. The largest multilateral programs were those of the European Economic Community (EEC), the World Bank's International Development Association (IDA), the U.N. agencies—World Food Program (WFP), U.N. Development Program/Food and Agriculture Organization (UNDP/FAO), the International Fund for Agricultural Development (IFAD), and the African Development Fund of the African Development Bank (ADB).

France remains predominant among the donors in the Sahel, continuing its historical, cultural, and economic ties with its former colonies. Many French expatriates are involved in governmental and parastatal bodies as technical advisors and Sahelian governments receive a sizable portion of the external assistance under the French Assistance and Cooperation Fund (FAC). Recognizing the increasing costs of maintaining its influence over the region after independence, France successfully pursued a strategy to involve other European donors in providing assistance, especially through the EEC.

The Organization of Petroleum Exporting Countries (OPEC), who together with their multilateral institutions are another significant set of donors, also have historical, cultural, and political ties with the Sahelian nations including membership in the nonaligned movement and pan-Islamic movements. Petroleum income influences OPEC's levels of funding: after peaking in 1981 at $425 million, OPEC funding declined to $300 million in 1982 and leveled off near $200 million in 1983 and 1984 (15 percent and 12 percent of total ODA in 1983 and 1984).

While the OPEC nations are reducing their assistance, others are increasing theirs, in part as a response to the drought. Some bilateral donors, for example the Canadians and Dutch, are increasing their assistance. Other donors new to the Sahel, such as Italy, Japan, and some PVOs, are now designing aid programs. Some donors are active only in Sub-Saharan Africa; for example, the Economic Development Fund (EDF) of the EEC and the ADB. Other donors conduct programs throughout the world but give special status to the Sahel, such as France and the United States. Some donors concentrate the majority of their resources in one country: Sweden to Cape Verde, England to The Gambia, and Saudi Arabia and Kuwait to Mauritania. Senegal has received the most assistance (from 1974 to 1982); The Gambia, Cape Verde, and Chad have received the least.

Project Size and Scale

The regional development strategies in the Sahel include a role for both large- and small-scale projects. Certain donors fund large programs and projects, including the World Bank, IFAD, the OPEC nations, and AID. Because some types of projects or programs require larger amounts of funds, such as capital-intensive infrastructure (roads, dams and river basin development), balance of payments and budget support, food aid, multisector (integrated) rural development, funders who emphasize these projects tend to be the larger donors who make large commitments. The lending institutions generally make larger commitments than grant-making ones: the French Central Fund for Economic Cooperation, ADB, and IFAD make large average commitments. However, some grant-making institutions, such as AID and EEC's EDF, have a tendency to make larger grants than others.

Size of commitment and scale of project generally show a positive correlation. Large projects, however, can impede local development. For example, large sums of money sometimes can be counterproductive for small, community-based, approaches. According to one analysis of the World Bank's effort to implement a poverty-oriented approach, the need to move large amounts of money was a major constraint to its success (3). IFAD is unique in its attempts to resolve the tension between large- and small-scale approaches: it commits large amounts of money to projects carefully designed and monitored for impact on a small scale and local level. AID also has attempted to resolve this tension by providing large grants to U.S. PVOs for similar projects in a number of villages.

Sectors Where Funders Operate

Various donors concentrate their resources on different sectors (see table A-4 in app. A). Most of France's funds from 1975 to 1983, for instance, were for technical assistance, budget support, and rainfed and irrigated agriculture. During the same period the United States concentrated on food aid, rainfed agriculture, multisector rural development, and technical assistance. The OPEC nations primarily supported transportation and other infrastructure, multisector rural development, and balance of payments and budget support. EEC focused on food aid, balance of payments support, infrastructure, and multisector rural development.

By coordinating complementary activities, donors can obtain greater impact and use resources more efficiently (17). For example, France provides as much funding for agricultural research as the United States, but places most of its funds and technical expertise in the national agricultural institutions, with a small part going to the international research institutions. This is the reverse of U.S. support. The need for more effective collaboration between the national and international agricultural research institutions reflects a need for closer collaboration among donors.

In each of the sectors, several bilateral and multilateral donors predominate. For example, the World Bank/IDA and the United States have major programs in forestry and ecology. Since the mandate of the United Nations Sudano-Sahelian Office (UNSO) was expanded in 1978 to help 19 African nations combat desertification (working together with the U.N. Environmental Program), most of the projects UNSO now supports in the Sahel deal with conservation issues.

Donors' priorities change over time. New commitments to river basin development and livestock have been declining recently, while support for food aid and rainfed and irrigated agriculture have been increasing (see table A-5 in app. A). The World Bank's increased emphasis on agriculture and rural development in the 1970s was an integral part of its Basic Human Needs Approach; now its published research and policy statements also stress other issues, including policy reform, population, and environment. However, donors' stated priorities may differ from the actual allocation of resources. The Club/CILSS strategy stresses forestry and environment in its policy statements, yet these areas receive less than 2 percent of the funds allocated. Most major donors call for direct assistance to small farmers, while the actual allocation of funds supports large-scale projects with only indirect benefits for farmers. For example, the greatest amount of IDA loans to the Sahel from 1975 to 1983 were for transportation and infrastructure ($276 million) and irrigation projects ($121 million; see table A-4 in app. A), while agricultural projects stressed export and irrigated, import-substitution crops.

Types of Assistance

Donors provide different general types of assistance to countries or sectors within countries—grants, loans, food commodities, and technical assistance. Certain donors may prefer some types of assistance while recipients may prefer others. Assistance from multilateral organizations or aid packages from several donors can provide the flexibility to match available assistance with the needs of recipients.

A number of institutions award grants: EDA of EEC, France's FAC, AID, and the UNDP. Others provide loans: e.g., the World Bank, France's CCCE, IFAD, and ADB. In the Sahel, more development assistance has been in the form of grants than loans. However, the trend is for an increasing portion to be loans: the 1980 to 1983, 3-year average of ODA provided to the CILSS countries was 65 percent grants and 35 percent loans, but the annual percent of grants declined from 67 to 62 percent during this time. France, for example, provided two-thirds of its assistance in 1983 in loans (through CCCE) and one-third in grants (through FAC).

Most development lenders make loans both at market rates and on better-than-market, concessional terms, but only loans on discounted terms (e.g., loans by IDA of the World Bank and African Development Fund of ADB) are considered part of development assistance. Because of their poverty, the Sahelian nations usually receive concessional loans from these institutions; Senegal is the only nation that has received nonconcessional loans from the World Bank.

Even though concessional terms delay the impact, these loans eventually must be repaid. While the multilateral lending institutions play a major role in designing the projects they fund, the Sahelian governments face the greater financial risk of whether or not the projects succeed. The lending institutions' first goal is ensuring that previous loans are repaid, a perspective that may lead to some conflict with the Sahelian countries' development priorities. Related tensions exist between donors with differing amounts of grant and loan funds for a certain country or sector, between concessional and market rate lenders, and between lenders whose mandates require short-term payback and those with "softer" terms. This situation clearly calls for increased collaboration among donors on a country-by-country basis. Until now, however, donor discussions on debt primarily have related to debt rescheduling.

Another form of assistance is to provide commodities, especially food aid, which may be distributed by recipients as emergency food, used in Food-for-Work type programs, or sold by Sahelian governments at subsidized or market rates. Donors may give commodities free of charge or sell them on concessional terms to Sahelian nations. The United States and other nations provide food aid through bilateral and multilateral channels. The United States, the U.N. WFP, and EEC are major providers of this type of aid in the Sahel. Food aid totaled 14 percent of ODA to the Sahel in 1983, before the height of the drought, and 40 percent of it was provided by WFP. WFP, which provided 60 percent of all U.N. assistance to the Sahel in 1983, distributes commodities received from the United States and other nations. At one time, its food assistance included animal feed (important for the pastoralists in the Sahel) but this is no longer the case (55). In its analysis of trends over the past decade, the Club/CILSS concluded that food aid had grown even in years of normal rainfall, an annual average rate of growth of 7 percent from 1975 to 1983. This shows that the food aid is increasingly accepted as normal and that commodities are being used more as a form of budget support and less for emergency aid (25). The major drawback of this type of aid is its possible negative effect on incentives for domestic food production.

The actual extent of these negative impacts is controversial. In a recent survey of food production and food policies in 20 Sub-Sahara African nations, including all the CILSS nations but The Gambia, the Congressional Research Service was unable to find any empirical studies on the effect of food aid on recipient government agricultural policies or on prices received by farmers (63). The role of food aid in relation to Sahelian agricultural development, especially in relation to food policy reform, needs to be carefully evaluated. In this area, as in so many others, there is also a need for concerted effort among the donors.

Many donors, including France, the United States, and FAO, also provide technical assistance. Technical assistance is usually classified as a grant or loan even if the money is used to pay salaries and expenses of a person from a donor country, a practice that recipients feel reduces the value of such aid. The quality of foreign technical assistance to the Sahel has been mixed and the costs are very high. Questions can be raised as to its appropriateness, especially regarding the lack of Sahel-specific experience of outside experts, and the degree to which this limits institutional development of the recipients.

The UNDP provides U.N. funds and coordinates U.N. projects in Sahelian countries with technical assistance provided by other U.N. agencies, often FAO. Some projects are implemented by a U.N. agency, but financed bilaterally. In addition, the technical assistance may be in the form of assistance to raise funds from other sources. For example, UNSO, set up in 1973 to coordinate assistance of the U.N. agencies in the CILSS countries and help the Sahel recover after the drought, identifies projects supported by the African governments and then finds other bilateral or multilateral donors to fund them. While its administrative costs are borne by UNDP, it acts as a broker with an array of funders (including other African nations) rather than as a funder itself.

Many donor countries, like the United States, provide all of these types of assistance, sometimes through different agencies. In addition, there are other forms of assistance, such as loan guarantees and equity investments, and differences in how they are provided. Some donors prefer to be the sole funder of a large, visible project while others prefer to co-finance projects with other donors; IFAD, for example, has co-financed half of its projects with the World Bank.

Faced with such an array of actors and mechanisms of support, Club du Sahel Executive Secretary Anne de Lattre concludes that the best starting point for donor coordination is:

> . . . to introduce low-key, technical coordination mechanisms at the country level starting with various sectors (e.g., irrigation, reforestation) where responsible nationals and donors can discuss ongoing projects, try to solve pending problems, and use their experience to plan more successful initiatives (38).

A Variety of Strengths

Donors possess a variety of strengths in the substantive areas of the overall development strategy directions that are needed in the Sahel. Some PVOs and the Peace Corps, as well as volunteers from other nations, are commonly perceived to have a comparative advantage in grassroots or village level work. The World Bank and United States are considered strong in macroeconomic analysis and policy reform while the United States and France are experienced in agricultural research. The United States and West Germany have skills and experience in forestry; the Dutch are strong in small-scale irrigation. Of course, at any given time in a specific country, the strengths of the personnel available in assistance organizations will vary.

However, the perceived strengths need to be reviewed critically. For example, a concern exists regarding the process by which analysis for the World Bank's recommendations for policy reform is carried out. This is particularly important because the Bank is seen as providing the lead for AID and other donors that lack the World Bank's capability for economic analysis.

Reasons for the World Bank's relative strengths in policy reform include the advantage it has as a multilateral organization and because of its relationship with the International Monetary Fund (IMF), though there is concern about lack of coordination between the World Bank and IMF (17,99). Because of the Bank's centralized structure, most of the economic analysis is done by the Bank's economists in Washington, where 94 percent of the Bank's staff work (3). Criticisms are often heard that economic analysis is based on generalizations, untested beliefs such as the efficacy of the private market, and that these are applied to all countries without much sensitivity to social and economic costs to the people or political costs to the government of a specific country.

So far, policy reform theories are largely untested in the Sahel. One official in a French development agency suggested that some economic advice is derived more from ideology than analysis. This criticism has been directed at the United States, the World Bank, and other donors supporting policy reform and who make it a condition of their assistance.

A Diversity of Approaches

Donors take different approaches regarding degrees of centralization and intensity of management, whether they employ a top-down or bottom-up approach, and degrees to which their programs are influenced by other goals such as political or commercial interests. Some assistance programs are very centralized, with the vast majority of their staff in headquarters (e.g., World Bank/IDA and IFAD), while others have a number of field offices and large numbers of staff in the Sahel (e.g., AID, UNDP, and FAO). Some donors (e.g., France) combine centralized approaches with field staff. Whether these differences are advantages or not is hard to judge. Some see the small number of World Bank field staff as an institutional constraint preventing implementation of the Bank's professed poverty alleviation policy; but it also can be seen as an advantage over AID in that once the Bank funds projects, it is not closely involved in their implementation (105). Management approaches also vary. Different donors require different numbers of people to administer a given amount of money, with those that fund large, capital-intensive loan programs generally requiring smaller numbers of field staff.

Some programs and projects are more management-intensive than others. For example, one of the strategic elements described as important in previous chapters is the need for local participation and village level programming. Development, support, oversight, and evaluation of these types of programs require significant amounts of staff time in relation to sums disbursed. The benefits of such an approach for achieving the goal of providing more effective assistance to Sahelian food security—on the national, regional, and individual level—argue against further cuts in field staff and for relieving field staff of some requirements. They also argue for greater use of Sahelian staff and organizations, perhaps on a contractual basis, and PVOs. They also indicate a need for a reduction or simplification of a number of reporting requirements for the local-level project implementors.

Another basic difference in approach is the degree to which a particular donor espouses, and then implements, a top-down or bottom-up approach to development. Many PVOs, the Peace Corps, IFAD, and the African Development Foundation, for example, espouse a bottom-up approach. On the other end of the spectrum are highly capital-intensive, large-scale, top-down government-oriented funding programs that favor infrastructure and balance of payments. The rural development strategies of the large funders, including the World Bank and AID, encourage bottom-up, participatory development. However, their size and institutional characteristics constrain their ability to develop and implement programs based on those goals.

Another difference in approach among donors is the degree to which they are influenced by goals unrelated to development. The Dutch program, for example, has been characterized as more development oriented and less tied to commercial interests than other bilateral programs. The political pressures of groups such as American and European farmers, Italian engineering firms, and Japanese and U.S. automakers, often result in policies that lessen the effectiveness of development assistance. For example, tied aid requirements limiting the recipient to procure goods and services in the donor country affected 43 percent of bilateral ODA from DAC countries in 1982 to 1983. These requirements not only reduce the value of the assistance but also result in the introduction of inappropriate technologies. While most of the European donors have tied aid requirements similar to the United States, the OPEC nations and multilateral agencies do not (147).

An oft-cited advantage of multilateral aid is that it is not tied to the commercial or short-term political objectives of individual nations (57,147), although others challenge both of these assumptions (3,94,99). A greater proportion of multilateral funding goes to low-income countries than does bilateral aid. Most bilateral funds go to middle income developing countries, often for nondevelopmental purposes (147). Bilateral aid is an increasing percentage of total U.S. assistance.

Within the diversity of donor organizations and forms of assistance, each has relative strengths and weaknesses. The scope of the challenge in the Sahel is broad enough so there is a role for each. Since no one donor can meet all the needs, collaboration is essential to maximize the impact and make the best use of scarce resources. An effective U.S. strategy should be based on a determination of the relative strengths and weaknesses of the various institutional actors and forms of assistance. Such an analysis must begin by considering U.S. institutions and the potential they have for contributing to the Sahel.

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Appendixes

Appendix A
Appendix Tables

Table A-1.—General Commitments Trend by Different Donors From 1975 to 1983, DAC[a] Countries (thousands of U.S. dollars)

Donors	1975	1979	1980	1981	1982	1983
Australia	$ 2,230	$ 38	—	—	—	—
Austria	370	1,152	$ 833	$ 2,904	—	—
Belgium	7,536	24,252	21,591	24,161	$ 15,887	$ 17,237
Canada	66,789	41,901	10,730	69,727	38,820	65,147
Denmark	3,490	5,632	19,160	2,116	7,306	23,564
Finland		19	519	618	—	—
France	177,194	277,675	319,216	384,068	302,281	144,099
Ireland			29			
Italy	800	290	710	2,550	—	33,843
Japan	2,510	46,864	38,747	26,590	25,270	30,425
The Netherlands	8,347	57,914	86,883	49,437	23,058	63,535
Norway	1,130	8,718	3,969	1,851	—	151
Sweden	1,970	5,761	16,384	2,962	8,365	8,268
Switzerland	4,047	18,324	11,967	38,556	22,661	28,362
United Kingdom	6,925	24,768	8,798	6,830	7,210	11,175
United States	71,322	123,244	130,111	143,322	144,360	139,357
West Germany	137,423	135,802	93,509	209,760	164,517	44,341
Total DAC	$492,083	$772,354	$763,156	$965,452	$759,735	$609,504

— = Not available.

[a] DAC—The Development Assistance Committee of the Organization for Economic Co-operation and Development.

SOURCE: Club du Sahel/CILSS, *Official Development Assistance to CILSS Member Countries in 1983* (Paris: Organization for Economic Co-operation and Development, 1985).

Table A-2.—General Commitments Trend by Different Donors From 1975 to 1983, Multilateral Institutions (non-OPEC[a]) (thousands of U.S. dollars)

Donors	1975	1979	1980	1981	1982	1983
International Development Association/ World Bank	$ 78,700	$110,100	$122,000	$166,300	$ 93,200	$127,000
European Economic Community	61,793	240,194	180,063	239,224	202,474	152,921
African Development Fund	25,554	44,302	34,326	58,641	73,713	51,174
International Fund for Agricultural Development		13,650	22,400	19,702	10,986	13,000
Cultural and Technical Development Agency	320	2,546	2,025		—	—
West African Development Bank			5,814	—		—
International Monetary Fund Trust Fund			22,445	—		—
Total multilateral aid (1)	$166,367	$410,792	$389,073	$483,867	$380,373	$344,095
Total United Nations (2)	50,607	78,082	101,227	97,790	72,020	110,304
Total (1) + (2)	$216,974	$488,874	$490,300	$581,657	$452,393	$454,399

— = Not available.

[a] OPEC—The Organization of Petroleum Exporting Countries.

SOURCE: Club du Sahel/CILSS, *Official Development Assistance to CILSS Member Countries in 1983* (Paris: Organization for Economic Co-operation and Development, 1985).

Table A-3.—General Commitments Trend by Different Donors From 1975 to 1983, OPEC[a] Countries and Institutions (thousands of U.S. dollars)

Donors	1975	1979	1980	1981	1982	1983
Algeria	$ 2,426	—	$ 2,000	$ 100	—	$ 4,500
Arab Bank for Economic Development in Africa	—	17,600	—	326	$ 9,000	15,009
Arab Fund for Economic and Social Development of the United Nations	—	$ 35,000	—	—	6,671	31,390
Arab Fund for Technical Assistance to African and Arab Countries	—	—	—	—	—	
Iran	—	—	—		—	50
Iraq	900	35,000	46,610	48,181	—	950
Islamic Development Bank	—	9,097	6,000	24,212	8,113	15,442
Kuwait	29,242	85,706	40,460	136,002	26,371	55,574
Libya	8,242	—	34,680	1,400	—	30,130
Nigeria	1,810	13,030	—	—	—	110
OPEC[a] Fund	—	17,750	34,000	59,520	41,060	30,600
Qatar	7,500	—	3,300	—	—	1,000
SAFAA	12,900	—	—	—	—	—
Saudi Arabia	20,868	116,788	67,930	102,221	160,064	11,098
United Arab Emirates	14,008	31,449	13,263	53,751	50,552	—
Total OPEC countries and financial institutions	$97,896	$361,420	$248,243	$425,713	$301,831	$195,853

[a] OPEC—The Organization of Petroleum Exporting Countries.

SOURCE: Club du Sahel/CILSS, *Official Development Assistance to CILSS Member Countries in 1983* (Paris: Organization for Economic Co-operation and Development, 1985).

Table A-4.—Who Finances What in Certain Sectors (total commitments, 1975-83)

	Millions of U.S. dollars	Percent
Balance of payments support:		
OPEC[a]	290	48
EEC[b]	253	42
West Germany	75	13
Food aid and emergency assistance:		
United States	344	26
EEC	299	23
OPEC	135	10
West Germany	121	9
United Nations	113	9
Multisectoral rural development:		
OPEC	437	33
West Germany	183	14
EEC	150	11
United States	109	8
France	103	8
IDA[c]	88	7
Irrigated farming:		
IDA	121	18
France	119	17
OPEC	102	13
EEC	90	15
Budget support:		
France	240	47
OPEC	208	40
IDA	30	6
Technical assistance:		
France	776	62
United States	92	7
United Nations	57	5
OPEC	38	3
Rainfed agriculture:		
France	146	16
United States	144	16
United Nations	119	13
EEC	114	13
West Germany	51	6
Ecology-forestry:		
IDA	33	17
United States	32	16
France	23	12
Switzerland	22	11
West Germany	15	8
Transport and infrastructure:		
OPEC	454	29
IDA	276	17
EEC	236	15
West Germany	136	9
Canada	108	7

[a] OPEC—The Organization of Petroleum Exporting Countries.
[b] EEC—European Economic Community.
[c] IDA—International Development Association/World Bank.

SOURCE: Club du Sahel/CILSS, *Official Development Assistance to CILSS Member Countries in 1983* (Paris: Organization for Economic Co-operation and Development, 1985).

Table A-5.—Sectoral Breakdown and Trend of Commitments From 1975 to 1983

	Percent of total[a] aid		Growth trend
Nonproject assistance:			
• Development assistance (technical assistance, research, scholarships)	12.4		down
• Operating assistance (including balance of payments and budget support)	11.0		down
• Food aid, emergency assistance	10.7		up
Project assistance:			
• Rainfed agriculture[b]	9.3	27.4 up	up
• Irrigated agriculture	7.6		up
• Major river basins (OMVS,[c] OMVG[d])	6.9		down
• Livestock	2.4		down
• Fisheries	1.2		up
• Reforestation	1.5		up
• Infrastructure (transport, telecommunications, urban development)	19.6		up
• Education and training	4.9		up
• Water supply (rural and urban)	3.8		down
• Mining	3.0		up
• Health	2.9		up
• Industry and tourism	2.0		down

[a] Average 1975-83 commitments.

[b] It is estimated that half of these commitments are for food production, i.e., 4.5 percent.

[c] The Senegal River Basin Development Authority.

[d] The Gambia River Basin Development Authority.

SOURCE: Club du Sahel/CILSS, *Official Development Assistance to CILSS Member Countries in 1983* (Paris: Organization for Economic Co-operation and Development, 1985).

Table A-6.—U.S. Aid to the Sahel, Fiscal Years 1975 to 1985 (millions of U.S. dollars)

Country	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Burkina Faso:											
Economic assistance	$ 5.3	$ 1.6	$ 3.4	$ 11.4	$ 15.9	$ 9.2	$ 14.1	$ 11.2	$ 0.3	*	$ 2.8
Food aid	3.6	3.6	8.1	8.3	9.5	12.2	15.1	6.8	7.2	$ 16.1	6.5
Peace Corps	0.7	1.0	1.0	1.0	1.5	1.3	1.4	1.6	1.4	1.5	1.5
Military assistance	—	—	—	—	0.1	0.1	0.1	0.1	0.1	*	*
Total	$ 9.5	$ 6.2	$12.5	$ 20.7	$ 27.0	$ 22.9	$ 30.8	$ 19.7	$ 9.0	$ 17.7	$ 10.8
Cape Verde:											
Economic assistance	$ 4.0	$ 1.0	$ 2.3	$ 8.0	$ 2.9	$ 3.1	$ 3.6	$ 3.5	$ 2.2	$ 2.0	$ 2.0
Food aid	0.1	2.1	3.2	3.4	4.5	2.7	3.0	2.5	2.7	4.5	0.7
Peace Corps	—	—	—	—	—	—	—	—	—	—	—
Military assistance	—	—	—	—	—	—	—	—	—	—	—
Total	$ 4.1	$ 3.1	$ 5.5	$ 11.4	$ 7.4	$ 5.8	$ 6.6	$ 6.0	$ 4.9	$ 6.5	$ 2.8
Chad:											
Economic assistance	$ 3.9	$ 2.2	$ 6.6	$ 11.2	$ 4.5	$ 0.2	—	$ 3.7	$ 2.0	$ 11.0	$ 14.0
Food aid	0.3	0.9	5.3	6.8	6.2	3.6	—	2.5	3.2	5.0	1.4
Peace Corps	0.6	0.8	0.9	1.4	0.7	—	—	—	—	—	—
Military assistance		—	—	—	—	—	—	—	*	2.2	5.2
Total	$ 4.8	$ 3.9	$12.8	$ 19.4	$ 10.0	$ 3.8	—	$ 6.2	$ 5.3	$ 18.2	$ 20.6
The Gambia:											
Economic assistance	$ 0.7	*	$ 0.1	$ 1.3	$ 4.5	$ 4.7	$ 5.6	$ 1.2	$ 3.9	$ 3.7	$ 4.6
Food aid	1.0	$ 1.0	0.7	1.1	0.8	2.0	1.3	1.1	0.4	3.3	0.7
Peace Corps	0.2	0.3	0.4	0.4	0.6	0.8	0.8	0.8	0.8	0.9	1.0
Military assistance	—	—	—	—	—	—	—	—	—	—	—
Total	$ 1.9	$ 1.3	$ 1.2	$ 2.8	$ 5.9	$ 7.5	$ 7.7	$ 3.1	$ 5.1	$ 7.9	$ 6.3
Mali:											
Economic assistance	$13.3	$ 3.8	$10.0	$ 10.1	$ 16.6	$ 15.5	$ 14.5	$ 9.6	$ 9.9	$ 11.6	$ 28.5
Food aid	8.9	0.2	*	5.3	1.4	0.6	—	0.8	4.3	11.1	1.5
Peace Corps	0.5	0.6	0.6	0.7	1.0	1.2	1.4	1.5	1.2	1.6	1.9
Military assistance	—	—	—	—	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Total	$22.7	$ 4.6	$10.6	$ 16.1	$ 19.1	$ 17.4	$ 16.0	$ 12.0	$ 15.5	$ 24.4	$ 32.1
Mauritania:											
Economic assistance	$ 1.7	$ 0.7	$ 1.7	$ 6.0	$ 6.3	$ 2.7	$ 8.5	$ 6.3	$ 5.1	$ 4.9	$ 9.4
Food aid	2.4	4.1	1.7	2.9	1.7	8.0	6.2	3.4	6.0	7.5	4.5
Peace Corps	0.2	0.3	0.2	0.3	0.7	0.9	1.1	1.5	1.4	1.6	1.5
Military assistance	—	—	—	—	—	—	*	*	0.1	0.1	0.1
Total	$ 4.3	$ 5.1	$ 3.6	$ 9.2	$ 8.7	$ 11.6	$ 15.8	$ 11.2	$ 12.6	$ 14.1	$ 15.5
Niger:											
Economic assistance	$ 0.2	$ 7.8	$ 6.7	$ 10.6	$ 10.9	$ 9.5	$ 13.7	$ 13.0	$ 21.0	$ 26.4	$ 25.0
Food aid	7.8	4.2	0.4	2.8	0.1	1.0	1.4	2.1	0.8	0.5	—
Peace Corps	1.2	1.6	1.3	1.4	1.9	2.2	2.4	2.7	2.3	2.4	2.6
Military assistance	—	—	—	—	—	—	2.5	2.4	2.5	2.2	5.2
Total	$ 9.2	$13.6	$ 8.4	$ 14.8	$ 12.9	$ 12.7	$ 17.4	$ 17.8	$ 24.0	$ 31.5	$ 32.8
Senegal:											
Economic assistance	$ 6.3	$ 2.1	$ 8.7	$ 8.7	$ 15.0	$ 10.0	$ 14.8	$ 16.2	$ 19.1	$ 34.6	$ 37.1
Food aid	2.1	2.7	2.9	11.2	5.9	15.1	18.6	12.8	12.3	14.7	4.6
Peace Corps	1.0	1.5	1.5	1.6	1.8	1.9	2.1	2.0	1.8	1.9	2.0
Military assistance	*	*	8.0	0.1	0.1	0.2	0.2	0.3	0.4	2.5	3.5
Total	$ 9.4	$ 6.3	$21.1	$ 21.6	$ 22.8	$ 27.2	$ 35.7	$ 31.3	$ 33.6	$ 53.7	$ 47.2
Sahel regional:											
Economic assistance	$13.5	$ 9.4	$ 8.9	$ 9.7	$ 7.9	$ 21.6	$ 22.2	$ 33.2	$ 32.7	$ 40.3	$ 22.9
Food aid	0.1	—	—	—	—	—	—	—	0.2	—	—
Peace Corps	—	—	—	—	—	—	—	—	—	—	—
Military assistance	—	—	—	—	—	—	—	—	—	—	—
Total	$13.5	$ 9.4	$ 8.9	$ 9.7	$ 7.9	$ 21.6	$ 22.2	$ 33.2	$ 32.9	$ 40.3	$ 22.9
Grand totals	$79.2	$53.5	$84.6	$125.7	$121.7	$130.4	$152.2	$140.5	$142.9	$214.3	$191.0

*Less than $50,000.

NOTE: "Food aid" is regular Public Law 480 and does not include emergency assistance, which amounted to about $50 million in fiscal year 1984 and $190 million in fiscal year 1985. This table appears as calculated by AID.

SOURCE: U.S. Agency for International Development, Bureau for Africa, Office of Sahel and West Africa Affairs, prepared for the Office of Technology Assessment, April 1986.

Table A-7.—Amount Spent on Public Law 480 Commodities for the Sahel, 1977-86 (in thousands of U.S. dollars)

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986 (estimated)
Burkina Faso:										
Total	7,940	8,144	8,596	11,473	13,916	5,963	6,876	12,419	19,663	6,789.1
Title I and III:										
Market value	0	0	0	0	0	0	0	0	0	0
Title II:										
Money spent	7,940	8,144	8,596	11,473	13,916	5,963	6,876	12,419	19,663	*[a]
Predicted: Total									29,428.3	10,305.6
Food									17,400.5	6,789.1
Freight									12,027.8	3,516.5
Cape Verde:										
Total	2,391	2,150	2,852	1,357	3,733	2,294	2,444	3,361	1,880	3,082.3
Title I and III:										
Market value	0	0	0	0	0	0	0	0	0	0
Title II:										
Money spent	2,391	2,150	2,852	1,357	3,733	2,294	2,444	3,361	1,880	*[a]
Predicted: Total									2,315.0	4,159.1
Food									1,533.0	3,082.3
Freight									782.0	1,076.8
Chad:										
Total	4,223	4,446	4,076	1,750	20	2,275	2,351	5,284	17,805	3,816.1
Title I and III:										
Market value	0	0	0	0	0	0	0	0	0	0
Title II:										
Money spent	4,223	4,446	4,076	1,750	20	2,275	2,351	5,284	17,805	*[a]
Predicted: Total									39,011.8	5,318.5
Food									19,061.5	3,816.1
Freight									19,950.3	1,502.4
The Gambia:										
Total	672	839	764	1,558	1,100	1,374	288	3,416	2,533	1,095.2
Title I and III:										
Market value	0	0	0	0	0	0	0	0	0	0
Title II:										
Money spent	672	839	764	1,558	1,100	1,374	288	3,416	2,533	*[a]
Predicted: Total									3,290.4	1,540.0
Food									2,633.4	1,095.2
Freight									657.0	444.8
Mali:										
Total	38	2,980	1,150	483	600	1,410	2,221	7,169	23,991	9,958.5
Title I and III:										
Market value	0	0	0	0	600	600	0	0	0	0
Title II:										
Money spent	38	2,980	1,150	483	0	810	2,221	7,169	23,991	*[a]
Predicted: Total									38,071.2	20,009.1
Food									19,436.1	9,958.5
Freight									18,635.1	10,050.6
Mauritania:										
Total	1,664	2,258	1,111	6,795	6,501	2,448	4,905	8,570	6,602	2,655.4
Title I and III:										
Market value	0	0	0	0	0	0	0	0	0	0
Title II:										
Money spent	1,664	2,258	1,111	6,795	6,501	2,448	4,905	8,570	6,602	*[a]
Predicted: Total									17,533.6	3,900.0
Food									7,040.3	2,655.4
Freight									10,493.3	1,244.6
Niger:										
Total	255	2,039	92	1,087	1,141	2,498	303	795	15,573	6,573.0
Title I and III:										
Market value	0	0	0	0	0	0	0	0	0	0
Title II:										
Money spent	255	2,039	92	1,087	1,141	2,498	303	795	15,573	*[a]
Predicted: Total									57,887.9	11,187.8
Food									20,907.7	6,573.0
Freight									36,980.2	4,614.8

Table A-7.—Amount Spent on Public Law 480 Commodities for the Sahel, 1977-86 (in thousands of U.S. dollars)—Continued

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986 (estimated)
Senegal:										
Total	2,948	9,419	5,969	15,750	29,119	26,372	12,266	13,872	3,986	10,243.7[b]
Title I and III:										
Market value	0	0	0	7,000(III)	17,100	24,100	7,000	0	0	5,500
Title II:										
Money spent	2,948	9,419	5,969	8,759	12,019	2,272	5,266	13,872	3,986	*[a]
Predicted: Total									11,528.2	7,838.2
Food									6,973.8	4,753.7
Freight									4,554.4	3,084.5
Total for eight countries	**20,131**	**32,275**	**24,610**	**40,262**	**56,130**	**44,634**	**31,654**	**54,886**	**92,033**	**44,213.3**

[a] Data not yet available.

[b] Combines the prediction for Title II with the payment for Titles I and III (Senegal, 1986).

NOTES: Title I and III are combined except where noted.
Title II includes World Food Program (WFP) and Emergency Supplements.
Title II does not include ocean freight except where noted in 1985 and 1986. In these 2 years, only the market value of the commodities is used to calculate the final totals in order to maintain consistency.
Data from 1977-84 is money actually spent on commodities.
Data from 1985-86 includes money projected to be spent on commodities and ocean freight as well as what actually was spent on food commodities in 1985.

SOURCE: U.S. Agency for International Development, Bureau for Food for Peace and Voluntary Assistance, Office of Food for Peace, April 1986.

Appendix B

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Appendix D

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Appendix E

The Sahel Development Strategy Statement—Executive Summary

The U.S. Agency for International Development's (AID) Sahel Country (Regional) Development Strategy Statement, published in April 1984 for use in fiscal year 1986, was developed by the Sahel Development Planning Team in Bamako, Mali and the Washington Sahel Office and incorporated the lessons AID had learned in the region. Below is the executive summary from the statement.

The Sahel Development Strategy Statement

Executive Summary

The multi-donor Sahel Development Program (SDP) encompasses the combined efforts of much of the world's donor community in eight countries: Chad, Niger, Mali, Upper Volta, Senegal, The Gambia, Mauritania, and Cape Verde. It was initiated in 1976, following several years of emergency drought relief and reconstruction in the Sahel. In 1978 Congress formally created AID's contribution and commitment to the program with the proviso that U.S. participation be limited to ten percent of the total annual donor commitment. The goals of the SDP are food self-reliance under conditions of sustained economic growth in a restored and stabilized environment. At that time, the program as termed "a Contract for a Generation," acknowledging a 20- to 30-year timeframe for the participants to achieve their goals. While AID is committed to these same objectives, the U S. commitment is subject to continuous review.

The economies of the Sahel countries which border on the Sahara Desert are based predominantly on subsistence, dry-land agriculture. The fundamental obstacles to the development of this region lie in the determination and implementation of the necessary technical means needed to increase per capita agricultural production. To achieve this goal in the primitive conditions of the Sahel it is necessary to develop its physical, human, and institutional infrastructure. Most of the 35 million people in these eight countries are illiterate, widely dispersed, and dependent on low-yielding agriculture and pastoralism. There is as yet no available alternative technology which could be applied to rapidly improve food production.

Between 1976 and 1982, the Western and Organization of Petroleum Exporting Countries aid donors committed approximately $8 billion to rehabilitation, budget, and balance of payments support, food aid, and development investment in the Sahel. (An appreciable quantity of Eastern Bloc resources, mostly for military purposes, was also contributed.) For its part, AID committed $600 million in development assistance plus $300 million in Public Law 480 food, and $10 million in Economic Stabilization Funds (ESF).

During this interval, cereals and livestock production regained their pre-drought levels and the average quantity of cereals output modestly increased. Yet rainfall has continued to be markedly less than the annual averages experienced during the pre-drought decade of the 1960s. The absolute drought has persisted in certain places (Cape Verde and Mauritania) and returned periodically in others. In certain respects, the region's dependency is actually worse given the high rate of population growth (2.5 to 3.0 percent annually) and the major disruptions, e.g., the oil shocks and world recession, within the global economy.

The net effect of the experience of 1976 to 1982 has been, at best, very slow growth of average individual incomes, declining per capita production, and a net deterioration in the financial condition and short-term economic prospects of the Sahel countries. Sahelian external debt and annual debt service have increased; export earnings have declined; fiscal imbalances exacerbated; and the overall dependency of these countries on external, concessional resources has dramatically increased.

To cope with the harsh natural conditions of the Sahel combined with the distressing international economy of recent years has been an Olympian requirement; to have recovered from the devastation of the initial drought, to have developed the capacity to withstand continuing drought, to have achieved real per capita improvement, however limited, and to have undertaken substantial basic measures for development and future improved production are the achievements of the Sahel States and the donor effort to date. Much of the multi-donor aid to the Sahel has been directed toward current consumption and economic stabilization. This type of aid will probably be required for several years. But the focus of the development effort has been to address the Sahelian production systems, some of the most primitive in the world and which are exacerbated by an exceptionally harsh environment extremely lacking in natural advantages.

AID's development effort initially had little information and understanding of the physical, institutional, and policy environment in which economic improvement was to take place. The acquisition of data was painful, costly, and time-consuming. However, systems were set up within the program to provide a continuous and increasing flow of data and to accumulate it as efficiently as possible. At the same time, AID mounted pilot investment initiatives to assure the availability of the variety of resources needed to achieve the program goals. It also began efforts to establish conducive official policies and public and private institutions, to provide training ranging from general literacy through all types of relevant technical specialties, to construct infrastructure, and to supply equipment.

The idea of the *coordinated* Sahel program is to maximize the effect of all donor and indigenous efforts in development by first agreeing on priority objectives and then seeing to the most advantageous application of all available resources. By organizing in a variety of ways under the auspices of the cooperative institutions established to implement the program, i.e., the CILSS (The Permanent Interstate Committee for Drought in the Sahel) and the Club du Sahel (organization of the donors), the efficiencies of coordination in the Sahel are being realized. It has worked to provide information and research, to share institutional resources and scarce personnel, to mount parallel actions where individual efforts would have been inadequate, to resolve issues which threatened the success of everyone's effort, and to minimize contradictions and redundancies. Thus, while this cooperation is far from perfect, it has yielded tangible and substantial benefits.

In early 1984 development in the Sahel is in its early stages. Economic transformation of this region will only be realized over an extended period and then only if systematic and deliberate support is assured. In 1982 to 1983 and extending into 1984, AID, the Club, the CILSS and individual Sahelian countries carried out a number of assessments, audits, and evaluations in order to identify progress, problems, and required adjustments. These have led to and will continue to yield improvements, for AID, in the type and extent of AID initiatives; for the program, in coordination and focus; and for CILSS, in the efficient use of resources. This introspection has revealed that the Program has achieved recovery and prevented the recurrence of disaster and has made some progress toward intermediate development targets. But there have also been a number of false starts and some tactical approaches have had to be revised. It has become clear that the Sahelian governments, because of limited financial resources (the recurrent cost problem), are not able to contribute as much to development as had been expected. Moreover, many of the initial development actions were too diverse or not consistent with the program priorities that shortages of indigenous skills were undercutting all initiatives.

A number of corrective measures have already been taken to address these issues, most importantly, the community has come to understand that hopes for rapid improvement in production and incomes based on implementation of better technologies are not realistic at this time because effective techniques in the Sahelian environment are not known or are too costly. In addition, we have found that we are obliged to assist to a much greater extent than anticipated with current consumption, economic stabilization, policy reform, and human capital formation.

The Strategy for the AID Program

We assume a continuing annual aggregate of donor assistance to the Sahel, in 1983 terms, of about $1.5 billion and an AID program of about $90 to $100 million in development assistance (1983 dollars) plus Public Law 480 commodities and some ESF. We will have to help with the immediate problem at sustaining current consumption levels and financial and economic stability by applying some of our resources to help with balance of payments, budgetary support, and food imports. The economic stabilization measures will be used to affect substantial reform in official policies, institutions, and practices where such adjustments are determined to be required for effective implementation of economic development. We will use local currencies generated from stabilization aid and food sales to finance local costs associated with improved production.

Given AID's own institutional priorities and strengths, we will focus our overall Sahel program and individual country programs in a few selected areas, consistent with our management capabilities. Priorities will be agricultural research and production, policy reform, health and family planning, training, infrastructure, conservation, and environmental protection. Not all of these initiatives need be undertaken in each Sahel country because of funding and management limitations.

Given the agriculture production priority, AID will devote a preponderant share of its resources to dryland and irrigated food cultivation and animal husbandry. Regarding the latter, livestock are a very important resource for the Sahel. After extended research and trial interventions, we have become convinced that traditional practices of pastoralism are well adapted to the Sahelian circumstances. However, there are significant opportunities for services and investments which will help improve the efficiency and aggregate output of livestock products. Animal health services can be improved through known technology and veterinary techniques. The pastoralists have proven their willingness to purchase these benefits when they are available. In addition, surveys have revealed substantial areas of underused range and fodder because of the absence of nearby water points. Hence, AID's interventions in the pastoral areas of the Sahel will focus on health delivery and water points development, as well as on assisting the institutions which provide these services and training. In the agriculture areas, AID encourages mixed farming and animal traction and will undertake selective research into the cultivation of fodder particularly in conjunction with farm management and crop rotation.

After many trials of a variety of technical interventions, we still do not know enough about alternative varieties, technologies, or systems of production to implement any broad-scale reform in rain-fed food cultivation in the Sahel. It is true that there have been limited successes with innovations such as animal traction; special varieties of cereals; and new crops, e.g., maize; and water management. These adaptations are implemented when they appear to be appropriate. In addition, there will be continuing attention given to paced training and expansion of extension services, food crop protection, supply of production inputs, improvement of marketing and distribution, and policy reform. However, because the knowledge required to improve agricultural production adequately to achieve the program goals is not yet available, the first priority must be agricultural research. This research will require training; close collaboration with the farmers themselves; and intensive biological and technical investigation of promising alternatives of varieties, techniques, fertilizers, and farming systems. Concurrently, we will undertake to develop training institutions, the agricultural infrastructure already installed, and that enabling infrastructure needed to open up production possibilities.

Our investigations have convinced us that the most likely evolution of rain-fed agricultural production will not yield the output goals and schedule we have set for the program. This production will inevitably be hostage to periodic severe drought. It is therefore advisable and necessary to undertake a major effort in irrigation development to exploit the considerable volumes of river water which now pass through the Sahel unused. While much irrigation is currently practiced, only about 10 percent of the potential is being exploited. AID and others have hesitated to undertake major efforts in irrigation because of the expensive infrastructure required, the technical sophistication involved in the operation, and the dismal experiences with many initiatives to date. Yet, irrigation development is required to realize the region's production potential and assure food security and we are convinced that these problems can be overcome. We propose to proceed deliberately, to acquire the necessary knowledge in selected pilot investments, to rehabilitate infrastructure in place, and to gradually expand the activity as our competence improves.

Development of human resources is *sine qua non* for economic improvement. Overall literacy in the region does not exceed 20 percent. Unfortunately AID has neither the expertise (for this predominantly traditional French system) nor the resources to address the overall education requirement. But we do foresee devoting an order of 15 to 20 percent of our resources to a variety of training initiatives which will assure the expertise required by our own development activities to improve the capability of those who work with our and the overall development program, provide the knowledge required by the farmers and other target beneficiaries of our program and, selectively, contribute to general educational planning and education.

Activities in public health and the integration of family planning services into the public health systems contribute to the productive capability of the populace. They are also necessary humanitarian measures in a truly threatening and unhealthy environment, and address the demand side of the food sufficiency objective. The most effective interventions will be those which exploit the investment already made in institutions and personnel by helping organize the system better and by providing basic implements, medicines, contraceptives, infrastructure, and financial resources. The efficiency of purchase and distribution of pharmaceuticals will have pervasive systemic importance. Assistance and training to provide better planning and information in the health ministries will also have broad beneficial impact. The major service delivery interventions will be in the improvement or creation of maternal/child health clinics, the provision of services for oral rehydration (ORT), immunization against childhood diseases, and the implementation of rural health systems (pilot rural health worker projects). All the foregoing may include research and surveillance components. AID's health and family planning activities in any one country will comprise only one or a few of the above because of our limitations of personnel and resources.

Our contributions to environmental stabilization and energy conservation are through forest management, protection of the woodlands, reduction of fuelwood consumption, plus erosion control and soil conservation. There is continuing and accelerating degradation which stems principally from the cutting of trees and brush for fuel. There is yet no accessible solution to the fuelwood problem. Consequently, we are forced to employ measures which are useful in themselves but will only slow and not reverse deforestation. These actions include: 1) reform of official practices in management and regulation of the woodlands; 2) research to discover a means to appropriately counteract degradation; 3) training of researchers, teachers, and forest managers; 4) development and popularization of fuel conserving wood stoves (a process which has very promising near-term possibilities); 5) scientific management of natural forests; and 6) soil conservation and water management. While during the planning period there will be a constraint of limited absorption capacity in this sector, AID will press interventions to the optimum considering the fundamental importance of success in reversing environmental degradation.

A Balanced Program

The variety of actions required for a competent program of agricultural production must be implemented as a coherent whole. First, we will have to identify and help bring about the necessary official policy and institutional environment to enable development to proceed. Training and education will be implemented as components of projects or will be designed to generate those talents required for the success of the production program. Public health interventions will occasionally be linked to agricultural initiatives or be located in those areas in which AID has undertaken other activities. Livestock and conservation activities are frequently integral to crop cultivation, etc. AID has learned in the Sahel to focus its efforts physically and sectorally to ease management and to exploit complementarities.

Comprehensive and coordinated agricultural development will be achieved through the coordination of all donor and Sahelian programs. This is accomplished through a system (still in evolution) of frequent discussion of activities, collaborative research, and information exchange at all levels through the Club/CILSS coordination efforts.

Appendix F

Assessment of the Sahel Development Program—Executive Summary

The U.S. Agency for International Development's (AID) "Assessment of the Sahel Development Program" was developed by the Sahel Development Planning Team in Bamako, Mali, and published in March 1983. The Assessment identified the lessons learned from AID activities in the region and was the basis for the 1984 Sahel Country (Regional) Strategy Statement. Below is the Executive Summary from the assessment.

Executive Summary and Conclusions

General

The present draft responds to a request from AA/AFR, F.S. Rudy, to AFR/SWA for an assessment of the Sahel Development Program which considers, interalia, "how it relates to the original objectives and what changes should be made now in view of political and economic developments in the Sahel" since its inception. The assessment finds that, despite problems encountered in their pursuit, the original objectives of the Sahel Development Program remain sound and feasible. AID's contribution to the multidonor effort should be sustained at its present proportional level.

As a result of the drought emergency of 1973, the United States, other donors, and the Sahelians developed a comprehensive strategy which attracted a large and sustained volume of resources as well as a strong commitment to long-term development of the region. The international community spent an estimated $1 billion on drought relief and post-drought rehabilitation from 1973 through 1974. From 1973 through 1982 the United States—through disaster assistance, Public Law 480, and the Development Assistance budget—has committed an equal amount of resources to the Sahel region.

The program in the Sahel is one of the best examples of international cooperation for development. A responsive organizational structure was devised to coordinate a large number of bilateral and multilateral development initiatives. The system is far from perfect, yet it has credibly addressed many of the basic problems of the region.

AID programs have been growing since the first reconstruction assistance of 1973 and 1974. The composition and orientation of AID's Sahel Development Program (SDP) has evolved significantly. Most of its weaknesses are traceable to the urgency which impelled the early development of the program and the deployment of appropriated funds at a pace which strained AID and host government management systems. A number of projects sought to stimulate medium-term food production increases based on over-optimistic judgments about the availability of technical packages, the capabilities of cooperating institutions, and the financial capacity of Sahelian governments. In addition, the program spread rapidly into forestry-ecology, primary health, women's roles, various kinds of training, village water supply and several areas of the livestock sector. The emphasis was on responding as directly as possible to the basic needs of target populations. However, many of the initial activities involved institutional development aspects, and later projects have been primarily oriented to such objectives. Numerous studies and analyses were also carried out—especially within the CILSS/Club structure—that today influence policy. Early assumptions about technology were often hedged with investments in research. The results of these varied efforts have been mixed, but on balance highly positive. The quality and effectiveness of the program has steadily improved as we have learned from experience to better understand the Sahelian cultural, administrative, institutional, and physical environments.

AID's SDP constitutes an important and proportionally appropriate component of the expanding multidonor development program. If the current level of effort is maintained in real terms, the CILSS/Club strategy goal of food self-sufficiency with environmental stability and self-sustaining economic growth is an achievable goal. For this reason and because of the importance of AID's role in the agricultural and rural development sectors, AID's contribution should increase proportionately with the overall donor effort. These resources must be coordinated within a regional, multidonor framework that allows for change and flexibility in response to the lessons of experience.

Lessons Learned

1. Technical production packages are still inadequate for all but some areas in higher rainfall zones. Selected technological improvements such as animal traction or certain new crop varieties have found useful application within specific agro-climatic zones and in certain farming systems, but on the whole, the available technical packages have not provided a basis for large-scale efforts to increase food production. This indicates the need for more emphasis on agricultural research and that most area-focused food production and integrated development projects need to be phased out or substantially redesigned and reoriented toward economically and technically valid goals.

2. Agricultural research systems directed at developing new production technologies must be strengthened, refocused on farming systems, and selectively expanded. While it is important that international and regional crop-oriented research be strengthened, it is also essential that the development of adequate national systems be given priority. Promising cultural practices and crop varieties coming out of international work must be evaluated in the various regional agro-climatic zones and tested under farm conditions. The research networks must ultimately produce superior technical packages for each agro-climatic zone. This implies a great deal of increased attention and careful programming of additional resources for agricultural research.

3. Our efforts to date have not placed enough emphasis on the development of agricultural production systems and forging strong linkages between their crucial elements. This implies a need for careful assessment of existing systems and selective targeting of institutional development assistance to foster the development of adequate production support systems within a 10 to 15 year time horizon. There is a subsidiary need for agriculture-oriented education and human resources development strategies at the regional and national levels.

4. Government agencies, including parastatals, should restrict themselves to roles that cannot be appropriately allocated to the private sector. However, for historical reasons, and often in association with AID, Sahelian governments are currently relying on parastatals to furnish goods and services which ultimately should be handled by the private sector. In such cases we need to help the governments to formulate plans for the orderly transfer of such functions to the private sector. On one side, governments and AID must disengage from paying parastatals' operating expenses and phase out subsidized provision of goods and services so that the private sector can compete. On the other hand, positive strategies are required to enable the private and cooperative sectors to take up input and produce marketing functions abandoned by governments.

5. Notwithstanding the success achieved in the CILSS/Club context in the pursuit of policy dialog, our programs at the national level have suffered from inadequate concern with the resolution of policy constraints to economic, and particularly agricultural, development. We should continue and reinforce efforts now underway to focus AID and other donor programs in ways that will induce essential reform.

6. River Basin and irrigation development must continue to be pursued on a steady basis so that river basin planning frameworks and socioeconomically sound irrigation models will be available to permit an acceleration of the pace of investment in irrigated agriculture over the next 15 to 20 years.

7. The forestry and environment component of the program continues to be inadequate and the decline of the woodlands continues. Most research, training and the conservation measures underway should continue and our level of effort in these areas should be increased substantially. We should, at the same time, seriously investigate the attributes of a major effort to establish plantations for urban fuelwood supply.

8. Further livestock production activities should be initiated only when we are sure of the technology being introduced, and it is clear that these offer economic returns superior to alternative agricultural investments. Other initiatives in the livestock sector should be limited to the development of socioeconomically and technically sound solutions to problems affecting productivity and producer incomes.

9. Notwithstanding all our good intentions to the contrary, AID has taken on too many separate projects and these have been too widely dispersed both geographically and sectorally. There is a need to limit project selection to the Sahel development strategy priorities of food self-sufficiency and ecological balance within the framework of suitably comprehensive long-term strategies.

10. The Sahel financial management problem as well as other difficulties we have had in implementing our program serve to remind us that we must plan and design our programs with scrupulous and realistic attention to the financial and administrative capabilities of Sahelian institutions and our own management resources. This means that we will have to select our institutional development involvements with great care, recognizing that human resource and financial constraints will often dictate long-term commitments and support of recurrent costs. We must find ways of facing up to the need to maintain adequate staff strength to manage our programs in the field.

Recommendations

1. A CDSS-type strategy is required for the development of the Sahel as a region. Based on analyses of the broad options, it would lay out a program for the phased development of: a) the institutional capabilities and programs in the agriculture and forestry/ecology sectors; and b) the irrigated agriculture capacity required to help achieve food self-sufficiency, through trade as well as domestic production, by the year 2000. Unlike the present Regional Development Strategy Statement (RDSS), the new strategy would address resource allocation issues in light of economic and technical analyses of the various trade-offs such as that between rainfed and irrigated agriculture.

2. Project selection must be guided strictly by the dictates of bilateral as well as regional program strategies in pursuit of food self-sufficiency and ecological balance by the year 2000. This implies vigorous development of agricultural and forestry/ecology sector strategies, complemented by derived program priorities in human resources, health, and other supporting sectors.

3. The staff resources and the role of the Sahel Development Planning Team (SDPT) must be strengthened. To the present complement should be added an agronomist knowledgeable of irrigated as well as rainfed systems, a river basin development specialist and a Deputy Director (Deputy Regional Development Officer or Program Officer). The latter is required to assure that the long-term planning and other functions of the team are consistently pursued despite the heavy travel schedules of the team members and Director. The SDPT should be charged with analyzing and commenting on the feasibility and priority of all PIDs and all strategy documents submitted by Sahel Missions. The persons responsible for AID liaison with the CILSS Secretariat and the Sahel Institute should function as members of the SDPT. The SDPT have PM&R budgetary resources sufficient to carry out or commission studies required for strategy development.

4. The SDPT should be transferred to Ouagadougou so that its long-term planning studies and analyses can be carried out in collaboration with the CILSS Secretariat and be fed consistently into the deliberations of sector working groups both at this regional level and at the national level.

5. We need to continue and strengthen our efforts in financial and program management. This requires:

- —an assessment of AID Sahel program management capacities and requirements in the field;
- —stricter review and criteria for financial management and accounting capabilities in every project, including the provision of technical assistance where necessary; and
- —a second generation of initiatives to strengthen program management capacities at the regional and national levels;
- —greater use of private sector accountants in design, implementation, and monitoring of the Sahel program and projects;
- —increased audit coverage of the program.

6. A review should be conducted of the SDP project portfolio in order to identify projects which need to be revised or phased out in light of the assessment findings, the Mission's current program strategies and the current RDSS.

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